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SOME HISTORICAL NOTES ON THE TREATMENT OF ANGINA PECTORIS*

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THE increasing importance of the anginal syndrome of coronary diseases, and the relative inadequacy of present-day treatment, prompted this quest into the past with the idea of chronologically recording the various drugs and methods that have been used in the treatment of angina pectoris. I have attempted to record the most important and interesting contributions; some have been deliberately omitted, and others undoubtedly deserving mention may have escaped my attention.

In turning back the pages of medical endeavor and progress one does so with a genuine sense of reverence and admiration, like a privileged witness before whom the drama of the history of disease is slowly and arduously unfolded. The innumerable difficulties thwarting the efforts of the early physicians are well known, and their accomplishments become more meritorious owing to their perseverance and determination in gradually overcoming the enormous obstacles of ignorance and superstition. The lack of special methods of examination created many masters of perception who developed to a high degree and wisely used their special senses.

The history of angina pectoris finds its true inception in 1768, when William Heberden recorded his remarkably accurate description of the symptoms of the disorder. In part he stated: "But there is a disorder of the breast marked with strong and peculiar symptoms, considerable for the kind of danger belonging to it, and not extremely rare, which deserves to be mentioned more at length. The seat of it, and the sense of strangling and anxiety with which it is attended, may make it not improperly be called angina pectoris . . . With respect to the treatment of

this complaint I have little or nothing to advance; nor, indeed, is it to be expected we should have made much progress in the cure of a disease which has hitherto hardly had a place or a name in medical books. Quiet, and warmth, and spiritous liquors help to restore patients who are nearly exhausted and so dispel the effects of a fit when it does not soon go off. Opium at bedtime will prevent the attacks at night." Prior to this time occasional references appeared to scarification, cupping, and the use of setons and blood-letting for painful disorders, but the authenticity of such reports referable to the anginal syndrome is doubtful.

Eight years later, in 1776, John Fothergill, another illustrious English physician, commented on the treatment of angina pectoris. He appreciated the relationship of flatulence to the precipitation of the painful seizures and advocated the use of the essence of peppermint to facilitate eructation of gas. In 1790, E. Alexander recommended the more or less continuous administration of small doses of arsenic solution, and he described a case in which he believed the patient was cured by this procedure. W. L. Perkins, two years later, reported what he believed to be a cure brought about by administration of white vitriol (zinc sulphate).

It must be remembered that during this era of therapeutics a great variety of drugs and preparations were in use. Many of these have long since been discarded as ineffectual, but some have survived the test of time. Therapeutic empiricism was a prominent feature of this period of medical development.

At the beginning of the Nineteenth Century, Schlesinger of Germany advocated the use of the extract of *Lactuca virosa* (lettuce juice) as a

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prompt and efficacious remedy for such spasmodic conditions as asthma and angina pectoris. Lettuce juice was earlier believed to contain atropine, but this was later disproved. It likewise was credited with hypnotic powers. In 1817, Reid, of Ireland, recommended inhalation of oxygen for angina pectoris, but this method of treatment apparently was not widely accepted. Interestingly, Steele, in 1900, eighty-three years later, described beneficial results in the treatment of severe paroxysms of angina pectoris from the inhalation of oxygen. In 1826, Laennec is credited with having favored blood-letting in the treatment of angina pectoris even though his contemporaries were emphatically opposed to the procedure, and insisted that it aggravated symptoms. Three years later Mantell advocated repeated blood-letting and the insertion of a seton. This latter procedure was a frank relic of the days of superstition. Newton, in 1832, used hydrosulphureted ammonia and believed it to be of value in diminishing the frequency and severity of the attacks. The last mention of venesection in the treatment of angina pectoris was found in Batten's article in 1834; in addition to this procedure he recommended administration of belladonna.

Sulphur was employed as an antispasmodic by Munk in 1840. As free sulphur apparently has no action at all in the body, whatever effect could be anticipated would depend on its partial conversion into sulphides. A year later, Schlesier advocated the use of dilute hydrocyanic acid (blausäure) in the treatment of angina pectoris because of its presumed vasodilating effect. In the same year Szerlecki relieved more severe anginal seizures by the subcutaneous injection of morphine acetate. Latham in 1846 used laudanum; it is interesting to observe in this connection that opium and its derivatives were intermittently employed in the treatment of the anginal syndrome since Heberden's original identification of it in 1768. Stokes, in 1854, recommended and used several drugs with apparent benefit. Small draughts of chloroform were believed to be quite effective in relieving attacks, while the use of spiritous liquors, ammonia, and Hoffman's anodyne (spiritus ætheris compositus) was also employed.

In 1857, Gripouilleau enthusiastically employed counterirritation of the anterior portion of the chest, with apparent benefit. These observations,

however, raise the question of the authenticity of diagnosis, and suggest the possibility that certain patients who obtained relief by such a procedure in reality had rheumatic conditions of the wall of the chest. Piorry, in 1864, advocated the administration of quinine sulphate.

It was not until 1867 that the first real therapeutic triumph in the treatment of angina pectoris occurred. Brunton described the almost instantaneous relief which occurred in most cases on inhalation of amyl nitrite. This work paved the way for other investigations dealing with the nitrites, and other contributions appeared in the ensuing sixteen years. This method of treating angina pectoris is included in present-day therapeutics.

Trousseau, in 1867 used atropine and the alcoholic infusion of mint. In 1869, Rockwell and Beard employed galvanic currents over the thorax and presumed beneficial results to be obtained in certain cases. Papillaud, in 1873, advised the rather sustained administration of potassium bromide, believing that the sedative effect of this drug reduced the frequency of attacks. Balfour in 1876 was an ardent exponent of the administration of iodides, and he emphasized the effects of these drugs on arteriosclerosis. In 1879, Murrell brought forth the valuable drug, nitroglycerin, and demonstrated its prompt action in relieving anginal seizures.

Dieulafoy, in 1880, advocated use of the ice bag to the precordial region, suggesting that continuous cooling of this region lessened the patient's appreciation of the attacks. Matthew Hay in 1883 advised the regular administration of sodium nitrite; time has shown, however, that this form of treatment has not been particularly efficacious.

Jakubovski and Mangub, in 1883 and 1885, respectively, advocated the use of *Viburnum opulus* (cramp bark) in the treatment of angina pectoris. It was believed to relieve cramps and on this premise its use was apparently based. Von Noorden, and also Laschkevitch, in 1886 suggested the administration of cocaine, but this form of treatment did not gain much support and apparently was soon abandoned. Huchard, in 1887, urged the use of iodine as the most reliable therapeutic agent in the treatment of angina pectoris. In 1889 Broadbent advised the administration of numerous drugs, such as belladonna, *Cannabis indica*, arsenic, and phosphorus. He

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also used counterirritation on the chest. In cases of angina pectoris associated with gout, Colchicum was administered. In the same year Martin reported on the beneficial effects of antipyrine, and Sée, four years later, recommended the same treatment. In 1892, Evans employed spartein sulphate and discussed the merits of this form of treatment. Lemoine, in 1894, advocated the administration of methylene blue.

The year 1895 marked the introduction into the treatment of the anginal syndrome of the purines, a group of drugs that are admitted to be of benefit today and which are quite widely used. Askanazy introduced theobromine sodium salicylate ("diuretin") in this year.

In 1897, Page, refuting the cardiac origin of angina pectoris, recommended pouring cold water over the abdomen or lower part of the back to relieve what he believed to be spasm of the stomach; in this connection it will be recalled that while most physicians had long associated the anginal syndrome with the heart, it was considered by many to be a functional disorder.

Bradbury, also in 1897, introduced erythrol tetranitrate, a drug which has essentially a nitrite action but which produces a less abrupt effect that is somewhat more sustained than that of the nitrites. Bostwick in the same year recommended administration of hyoscine. In 1898, Clements reported favorably on the use of *Cratægus oxyacantha* (fluid extract of English hawthorne) in the treatment of angina pectoris. This drug is still advocated by some of the older practitioners of medicine.

William Ewart, in 1899, advocated inhalation of carbon dioxide well diluted with air, apparently on the premise that the increased depth of respiration resulted in benefit. In 1902, Marshall and Wigner introduced mannitol pentanitrate, a drug similar in action to erythrol tetranitrate, but which was very slow in manifesting its effect; it is now rarely used. In the same year Strümpell advocated the following drugs for the treatment of the anginal syndrome: camphor, Strophanthus, chloral, and chloralamide. The basis for their employment is obvious. Also in 1902, based on the contribution of Askanazy, Kaufmann and Pauli, and also Breuer, discussed the favorable results obtained by them following administration of theobromine. In the next year Pineles reported on the use of theocin. Rumpf, in 1907, expounded the value of electric baths,

using the sinusoidal current, a procedure which did not receive much acceptance. In the same year Hasselbalch and Jacobäus advocated exposure to Finsen light. Mackenzie's treatment (1908) stressed the symptomatic value of administering chloral and ammonium bromide, in addition to a well ordered regimen.

The next contribution to the treatment of angina pectoris was revolutionary, and it was accepted by the medical world with unprecedented enthusiasm. In 1916 Jonnesco^{32, 33, 34} described his operation of cervical sympathectomy whereby the sympathetic nerve connections of the heart were interrupted, thus presumably destroying the arc of pain stimuli. Numerous modifications of this procedure have ensued, but as yet no single procedure has been presented that has uniformly resulted in success.

In 1922 Klewitz and Kirchheim, and also Niemeyer, reported the beneficial results obtained in some cases of angina pectoris following the intravenous injection of hypertonic solutions of glucose. This form of treatment is based on the presumption that the glycogen content of heart muscle, which becomes rapidly reduced under conditions of anoxemia, is augmented by such intravenous injections. The method has a definite place in modern therapeutics.

In 1923 Daniélopou,^{17, 18} with Jonnesco's work in mind, advocated resection of the paravertebral nerves. Results were variable and uncertain and various modifications of this procedure were inevitable. Mandl, in 1925, conservatively modified Daniélopou's procedure by injecting procaine, and later alcohol, into the paravertebral nerves. While this method of treatment has given variable results, it undoubtedly has a place in certain selected cases.

In 1924 Babcock recommended the use of benzyl benzoate in the treatment of the anginal syndrome. Babcock accepted Allbutt's concept of the origin of pain and believed that the beneficial action of benzyl benzoate resulted from the relief of spasm in some part of the vascular system, so that the pressure within the aorta was lessened, thus preventing tension on the diseased walls.

Hay and Ince in 1926 recommended diathermy, and this mode of treatment was tested quite thoroughly. The results, however, were not encouraging so that it has now been quite generally abandoned. Ecker, a year later, discussed the

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TABLE I. VARIOUS METHODS OF TREATING ANGINA PECTORIS

Year	Author	Country	Treatment
1768	Heberden	England	Quiet, warmth, spiritous liquors, opium, counter-irritation
1776	Fothergill	England	Essence of peppermint, to promote eructation
1790	Alexander	England	Arsenic solution
1792	Perkins	England	White vitriol (zinc sulphate)
1809	Schlesinger	Germany	Extract Lactucæ virosæ (lettuce leaves)
1817	Reid	Ireland	Inhalation of oxygen
1826	Laennec	France	Venesection
1829	Mantell	England	Venesection and a seton
1832	Newton	Ireland	Hydrosulphureted ammonia
1834	Batten	England	Venesection and belladonna
1840	Munk	England	Sulphur
1841	Schlesier	Germany	Dilute hydrocyanic acid
1841	Szerlecki	Germany	Subcutaneous injection of morphine acetate
1846	Latham	England	Laudanum
1854	Stokes	Ireland	Draughts of chloroform, spiritous liquors, ammonia, Hoffman's anodyne (compound spirit of ether)
1857	Gripouilleau	France	Counterirritation
1864	Piorry	France	Quinine sulphate
1867	Brunton	England	Inhalation of amyl nitrite
1867	Trousseau	France	Atropine, alcoholic infusion of mint
1869	Rockwell and Beard	U. S.	Galvanic current
1873	Papillaud	France	Potassium bromide
1876	Balfour	England	Iodides
1879	Murrell	England	Nitroglycerin
1880	Dieulafoy	France	Ice bag
1883	Hay, Matthew	England	Sodium nitrite
1883	Jakubovski	Russia	Viburnum opulus
1885	Mangub	Russia	Viburnum opulus
1886	von Noorden	Germany	Cocaine
1886	Laschkevitch	France	Cocaine
1887	Huchard	France	Iodine
1889	Broadbent	England	Belladonna, Cannabis indica, arsenic, phosphorus, counter-irritation, Colchicum

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TABLE I. VARIOUS METHODS OF TREATING ANGINA PECTORIS—*Continued*

Year	Author	Country	Treatment
1889	Martin	U. S.	Antipyrine
1892	Evans	U. S.	Sparteín sulphate
1893	Sée	France	Antipyrine (phenazone)
1894	Lemoine	France	Methylene blue
1895	Askanazy	Germany	Theobromine sodium salicylate ("Diuretin")
1897	Page	U. S.	Water
1897	Bradbury	England	Erythrol tetranitrate
1897	Bostwick	U. S.	Hyoscine
1898	Clements	U. S.	Crataegus oxyacantha (English hawthorne)
1899	Ewart	England	Inhalation of carbon dioxide
1900	Steele	England	Inhalation of oxygen
1902	Marshall and Wigner	England	Mannitol pentanitrate
1902	Strümpell	Germany	Camphor, Strophanthus, chloral, chloralamide
1902	Kaufmann and Pauli	Austria	Theobromine
1902	Breuer	Germany	Theobromine
1903	Pineles	Austria	Theocin
1907	Rumpf	Germany	Electric baths with sinusoidal current
1907	Hasselbalch and Jacobaus	Germany	Exposure to Finsen light
1908	Mackenzie	England	Chloral, ammonium bromide
1916	Jonnesco	France	Cervical sympathectomy
1922	Klewitz and Kirchheim	Germany	Intravenous injection of hypertonic glucose solution
1922	Niemeyer	Germany	Intravenous injection of hypertonic glucose solution
1923	Daniélopou	France	Resection of paravertebral nerves
1924	Babcock	U. S.	Benzyl benzoate
1925	Mandl	Austria	Injection of paravertebral nerves with procaine and alcohol
1926	Hay and Ince	England	Diathermy
1927	Ecker	U. S.	Roentgen rays
1929	Vaquez, Giroux and Kisthinos	France	Insulin-free pancreatic extract
1933	Blumgart, et al	U. S.	Total ablation of thyroid gland
1935	Beck, et al	U. S.	Transplantation of pedicle flap of pectoral muscle to the heart
1935	Krantz, et al	U. S.	Inhalation of trichlorethylene

possibilities of roentgen therapy, but there has been no general acceptance of this method either. In 1929 Vaquez and his associates advocated the subcutaneous injection of insulin-free pancreatic extract. The vasodilating effect of this and other tissue extracts has been clearly demonstrated, but although this form of treatment is effective in some cases, its routine employment cannot be advised.

The applicability of surgical methods to the treatment of the anginal syndrome was again advanced in 1933, this time by Blumgart and his co-worker.^{7, 8, 9, 10, 24} They recommended total ablation of the thyroid gland. This procedure is based upon sound physiologic principles which in brief consist in reducing the circulatory demand by lowering the basal metabolic rate. While this method of producing symptomatic relief has resulted favorably in a considerable number of cases, a procedure of this magnitude, which is attended by an appreciable risk in its execution, is destined to lose popularity and to remain a form of treatment for only a selected group of patients.

Beck and his associates in 1935 reported the transplantation of a pedicle flap of the pectoral muscle to the epicardium, in the hope of establishing an extrinsic blood supply to nourish the heart and to supplant and augment the impaired coronary circulation. Sufficient data are not available at this time to judge thoroughly the merits of the operation. In 1935, also, Krantz and his associates called attention to a simple method of relieving the anginal syndrome. They advocated inhalation of trichlorethylene, a drug that appears to have a sedative action which influences the basal ganglia. While it does appear to have a sedative effect of fairly sustained duration, it does not appear to have any effect on the immediate attack.

This historical survey embraces a period of 168 years, during which a different method of treatment or the introduction of a new method or drug appeared on the average every two and a half years. It is interesting to recall that, in addition to other remedies, Heberden in 1768 stressed the fact that spiritous liquors were helpful in relieving an anginal attack, an expedient that today is still utilized by some patients. Opium and its derivatives were likewise pioneers in the treatment of this disorder.

Surgery as a method of treatment did not

appear for a century and a half, when Jonnesco introduced cervical sympathectomy, and in the ensuing nineteen years it attained considerable popularity. Its continued application to the treatment of angina pectoris, however, remains a question for time alone to answer.

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TREATMENT OF BEHAVIOR PROBLEMS, PARTICULARLY DELINQUENCY, IN EUROPEAN CLINICS VISITED DURING SUMMER OF 1935*

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THE trip to Europe being reported was made in the summer of 1935 to study behavior conditions, and especially juvenile delinquency, in the various European countries.

In Switzerland a school teacher, Hans Zulliger, was seen at Ittigen-Berne. Zulliger is particularly interested in delinquency. He has been connected with the Swiss Psychoanalytic Society for many years and has done excellent work in emotional aspects of delinquency. He has become quite an authority on the problems of

behavior presented by the poorly adjusted school child and has written articles and books on this subject. He is also especially interested in the Rorschach Test, which, until recently, was little used in this country. During the past few years several psychiatrists and psychologists have been studying this test and have been describing their conclusions in journals devoted to behavior. Those who are interested will find references in the *American Journal of Orthopsychiatry*. This test is said in a concise way to give a clear picture of the emotional makeup of individuals who are disturbed. The tests were originally

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given to psychotics and were later applied to all types of behavior disorders.

Frau Doktor Behn Eschenburg was seen in Zurich. Her husband was a famous psychiatrist who also had done a great deal of work with the Rorschach Test. She is interested in emotional problems in children and is a member of the Swiss Psychoanalytic Society. She has recently been assigned to the task of educating all the normal school teachers with respect to the emotional development and conflicts in the pre-school and school age child. This is the first attempt in Switzerland to give prospective school teachers a clear picture of the emotional needs of the child. It is a wise step and could to advantage be adopted in this country also.

In Vienna most of the time was spent with Anna Freud and August Aichhorn. The writer had worked with both of these people for a period of a year and a half in 1930-31. He took this occasion last summer to review with them many of the puzzling problems of neurosis and delinquency which were being studied at the Child Guidance Clinic in St. Paul. Interest in juvenile delinquency has grown considerably in psychoanalytic movements during the past five years. Many interesting research studies are being carried on and the results of these studies should be valuable. Dr. Hoffer, editor of the journal *Zeitschrift für Psychoanalytische Pädagogik*, has had charge of a small institution for delinquent boys whom he is studying intensively.

Twelve days were spent in Russia. Juvenile delinquency has diminished considerably according to those in charge of this work in Moscow. This can be understood in the light of the fact that attempts have been made to remove the environmental causes for delinquency. Neglected and dependent children have been grouped together and placed in institutions where they have been given special vocational and academic training. Heavy fines have been placed on parents who neglect their children. Play and work facilities have been created to the extent that the large percentage of what formerly constituted a delinquent population are now being seen and helped by socially minded individuals. The Government has taken active steps toward reducing juvenile delinquency and has turned over to the institutions their most gifted pedagogues. This is in contrast to many places where the weakest

teachers are assigned to the delinquent and defective groups. The Russians are so impressed with the results of their efforts that many of them have lost sight of the fact that there are problems other than environmental ones which may cause delinquency. They admit that organic pathology of the nervous system can cause impulsive, delinquent behavior but refuse to accept the explanation that emotional conflict is in any way responsible for delinquency. This is only the opinion, however, of some of their experts. Two or three capable psychiatrists who were seen in Leningrad took exception to this point of view and agreed that emotional conflict very often is a strong motivating factor responsible for delinquency.

Lubertzy Commune was visited. This represents Russia's attempt to socialize the promising delinquents. It is a step between institutional life and return to society. The prisoners are given a great many privileges, including that of marrying and having children, learning a vocation and earning the same wages as those in the larger cities.

Stockholm is quite progressive in the treatment of behavior problems. They have two Child Guidance Clinics. One of them is connected with the Child Welfare Board; the other is a part of the Pediatrics Section of the University Hospital. One of their important problems in delinquency is that of illegitimacy. Roughly, a third of the births in Stockholm are said to be illegitimate. One is not surprised, therefore, to find that there are a great many criminal abortions carried on, since abortion is not a legal operation there. (It is in Russia.) A reliable source stated that at one time half of the beds in a good hospital were filled with abortion cases. An intelligent approach to the problem of delinquency has been made in Sweden. A psychopathic ward has been constructed at the State Prison at Longholm and all major criminals are observed here for one or two months before they are brought to trial. Doctor Nordal is particularly active in this work. He is also in charge of the Child Guidance Clinic at the University and is responsible for the teaching of abnormal behavior in children to the medical students, doctors, legal students and lawyers.

Copenhagen is not nearly as advanced with regard to the care of the delinquent or abnormal

child. Those who were interviewed ascribed this to the fact that the Department of Psychiatry has been primarily interested in organic pathology and not in functional illness. The neuroses and psychoses have received relatively little consideration. The country is overfilled with institutions of all sizes for every type of problem; only a certain percentage of these are efficiently managed. It is unfortunate that the expense necessary to carry on these institutions has made it difficult to establish Clinics that can study intensively individual cases.

Amsterdam is very progressive in the treatment of juvenile delinquency. They have an excellent Child Guidance Clinic whose staff has been trained in New York and in London. The writer had worked with two of the members of this staff in New York. Their results are encouraging. They have a good juvenile court, schools for social work (Stockholm also has a good school for social work), and an organization of psychiatrists who are very much interested in functional conditions. Dr. van der Hoop gives to the medical students a course of twenty-four lectures devoted entirely to the neuroses. Most of the psychiatrists in Amsterdam are analysts. Some of their younger men are interested in the treatment of the conflicted delinquent.

It is probably not generally known how progressive Belgium is in the treatment of delinquency. They established the first Juvenile Court in Europe, and their present court could be used as a model by any progressive country. Every juvenile delinquent brought before the court is given a social, psychological, physical and psychiatric study. Every adult who has committed a crime serious enough to demand a grand jury investigation is given a similar study. One of the psychiatrists interviewed was amazed to find this was not a general procedure in America. He wondered how any judge could assume the responsibility of handling a case when he could not get consultation from the psychiatrist, sociologist and psychologist. Every large prison throughout Belgium has its psychopathic department. The prisoner is assigned to a branch of service which will interest him and which will be most helpful towards rehabilitating him. The psychiatrist helps to determine whether or not it is advisable for the prisoner to leave the institution. Every case that has received psychiatric help in the prison must be followed up

in a Dispensary for Mental Hygiene conducted by the Red Cross. There are six large dispensary units of this kind in Belgium.

Those who are interested in the treatment of the mentally retarded and harmless psychotics will enjoy visiting the community of Gheel in Belgium. These people are allowed to board in private homes and have made surprisingly good adjustments.

London is handling problems of delinquency and abnormal behavior very much as we do in the larger centers in America. There are six or seven Child Guidance Clinics in London, including the large London Child Guidance Clinic supported by the Commonwealth Fund of America for the training of psychologists, psychiatrists and psychiatric social workers. The juvenile courts are run quite similarly to ours. Their probation is not nearly as well developed as ours. They, as well as other centers in Europe, regret very much the fact that they have not developed foster home care for their delinquent young people. They are quite envious of the work being done in this country in foster homes and hope eventually to develop such a program.

One outstanding experiment is being carried on in London with reference to delinquency. An organization was formed two years ago known as the Society for Scientific Study of Delinquency. About twenty psychiatrists and sociologists constitute the membership of this organization. About half of the psychiatrists are psychoanalysts and every one in the group is interested in the emotional factors which may be responsible for crime. A small institution is being built in the country where a limited number of juvenile delinquents can be given intensive psychiatric study. This approach to the problem of delinquency is badly needed in every country in the world, and we shall look anxiously for the conclusions which will come from their investigations.

This description affects only the high spots, and there are undoubtedly many experiments in juvenile delinquency which are being conducted in the countries that were visited which were overlooked because their existence was not known to the writer, or time did not permit it. It was very interesting to note that wherever one visits, the problems of delinquency are quite similar. The same kinds of behavior patterns manifest themselves as a result of the same kinds of physical, environmental and emotional factors.

THE SOCIAL ASPECTS OF DELINQUENCY*

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A STUDY of the social aspects of juvenile delinquency shows that the problem of crime is really a problem of adolescent youth, environment, unemployment, and improper use of leisure hours. Almost every criminal career begins with juvenile delinquency and every criminal career is progressive. The old saying, "as the twig is bent so the tree is inclined," is very applicable to the question being discussed this evening. Usually the criminal career begins with the juvenile rowdy, i.e., the tag-a-long who commits acts of vandalism to win the applause of older boys. He soon graduates into petty thievery, one offense leading to another, and finally progresses into grosser crime, ending in the creation of a confirmed criminal.

Only about one out of every ten criminals is arrested or detected so it must be obvious that we never can possibly apprehend all of them. Therefore, the theory that we can check crime by arresting a few of them at the top and bringing back the lash and capital punishment is absurd. So frequently getting into court is a matter of chance and of family and social resources. One juvenile delinquent might "get by" for some adventitious reason, and another, probably less dangerous to the community than the first, be penalized. Every year about 200,000 juveniles pass before the courts on delinquency charges¹ but many others never get to the courts because of various different combinations of circumstances. Some are in rural districts which are poorly supervised and loosely organized for the control of delinquency, some are from wealthy families with "pull," and still others are set right by teachers, parents, or clergymen. There are no figures to show that juvenile delinquency is on the increase. At regular intervals there occurs a great deal of agitation about "Youth and the Crime Wave," but this is for the most part without foundation.

Authorities on crime prevention agree that the passing of new laws or the creating of new courts will not diminish crime. We hope to pre-

vent crime by beginning with the *finished criminal*. We develop superior police methods and various techniques of punishment which cause us to lock up a few dangerous men or deter others through fear, but these results are only temporary. They are only temporary because repressive methods are bound eventually to grow lax and the ubiquitous potential criminal is always ready to become active. Crime is a symptom and not a disease or a cause. It is a rebellion against the laws of society, and is a rebellion which can be traced to selfishness, thoughtlessness, or a spirit of adventure. Sheldon Glueck, professor of criminology at Harvard Law School, says that in order to diminish crime we must wage a basic attack against the *fundamental causes*. Educated people are beginning to realize that any crime prevention program must be closely related to the whole problem of dealing with the juvenile delinquent. One of the fundamental causes of major crime is juvenile delinquencies. We must remember that in dealing with the juvenile delinquent we are not dealing with a strange creature but we are dealing with a pattern of human behavior that has developed in the social process in a direction that makes it at variance with the standards of society.

According to Dr. L. G. Brown,² professor of sociology at Ohio Wesleyan University, there are four statements that serve as a frame of reference in attempting to understand delinquent human nature and the social factors involved.

1. Delinquency, like any other behavior pattern, is an adjustment to a social situation. All that the individual has at birth is a random behavior capital with no aim toward adjustment. It is not any more natural *not* to steal than to steal, *not* to lie than to lie, and it is no more natural to be non-delinquent than it is to be delinquent. Delinquency or non-delinquency is a product of sociology and not of biology.

2. The delinquent or criminal as a social type is produced by identically the same social process as the non-delinquent. As far as the new-

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born is concerned there aren't any such things as property, human rights, womanhood, honor, chastity, or laws. These objects, both concrete and abstract, come into his world through experience, which is a social process. Through this social process these entities become social objects: The child's conception of the social objects in his world develops from the attitudes that experience causes him habitually to assume toward these objects. Thus, property may become an object to protect or an object to destroy, merchandise may become an object to steal or an object to buy, human beings may become objects of altruism or objects of exploitation, and God may be worshipped or blasphemed. The difference between a criminal and a law-abiding citizen is the difference in the manner in which social objects have been acquired and defined.

3. A delinquent or criminal pattern of behavior is not any harder to change than a non-delinquent pattern of behavior. Try to break up the habits, attitudes, and the interest that a normal non-delinquent child has in baseball, football, or any other of his pet hobbies. Select ten physicians, ten lawyers, ten clergymen, and ten criminals all equally interested and habituated in their professions and you will find it equally hard to change the life pattern in each group.

4. Whenever one finds a delinquent or a criminal, there he finds a delinquent or a criminal social situation. What are some of these delinquent or criminal social situations tending to cause and promote juvenile delinquency?

The Home.—Judge Herbert G. Cochran³ of Norfolk, Virginia, finds that 90 per cent of the cases of juvenile delinquency appearing in his court are traceable to an unsatisfactory home situation, and 80 per cent of all delinquent and unlawful acts are committed by children away from their homes. Greenhill⁴ states that the bulk of delinquents are the victims of misfortune to their parents or to their homes, i.e., premature or early death of one or both parents, accidents, chronic illness, poverty, unemployment, nervous and mental disorders, and broken homes. Any reduction in the frequency or any mitigation of the consequences of these will automatically result in the prevention or mitigation of delinquency. The development of preventive medicine, public health measures, mental hygiene movements, workman's compensation laws, un-

employment insurance, and domestic relation courts should be considered as a means to this end.

The problem of the "second generation" is an important one in juvenile delinquency. By this is meant the American-born children of foreign-born parents. The immigrant parent himself is not the potential criminal. He is an honest type who has given up the language, customs, traditions, and security of his home-land in order that he may come to America where his children will have a better chance. These foreign-born parents live in two or three rooms in tenements amid squalor, poverty, and filth. They live in the old manner. They are poor and they don't speak English. Their children go to public or parochial schools where they are taught that all men are equal, that every boy can be President of the United States, and that one person is as good as another. They then return to their dirty homes and "ignorant" parents and begin to feel superior to them. Parental control is lost, tradition is broken down, disrespect loosens the family ties, and there is nothing to prevent the boy or girl from succumbing to the temptations which inevitably are thrown into his or her path.

The Neighborhood.—Most juvenile delinquents who become before the courts are from the poor neighborhoods, the so-called interstitial areas which are the down and out districts unsuitable for residential purposes, where factories encroach upon homes, and the poorer, less desirable, less intelligent, less ambitious down-and-outers go to live. These areas are veritable incubators for juvenile delinquents. They have been defined for twenty or more American cities of different types, usually by means of spot-maps, and are characterized by physical deterioration, decreasing population, high rates of delinquency, high percentage of foreign-born and negro population, and high rates of adult offenders.⁵ According to Dr. Frederic M. Thrasher,⁶ associate professor of education at New York University, in these areas the nationality composition of the population changes almost completely in twenty years, but the delinquency rate remains constant. This tends to support Professor Brown's contention that crime is more a matter of sociology than of biology.

Physical and Mental Conditions.—According to figures cited by Greenhill⁴ one-fifth of all our

preschool children are undernourished, mentally defective, or in need of medical care. Of our 45,000,000 children, 15,000,000 are physically handicapped. Of these, 3,000,000 have impaired hearing, 65,000 have defective vision, 1,000,000 have speech defects, 300,000 are crippled, 1,250,000 either have tuberculosis or are tuberculosis suspects, 450,000 have damaged hearts, 2,500,000 have some neuropsychiatric disorder, and 6,500,000 are mentally deficient. Only about one-fifth of the above are being taken care of, leaving about 12,000,000 who by even the most optimistic thinkers cannot be ranked very high as the hope of the nation.

Gangs.—The gang has its roots in the oldest social organization known to man, namely, the tribe. The acts of its members are motivated by primal natural instincts which are too strong to be submerged. Delinquents frequently go in groups (Lippman⁷) because the group offers them the best medium for their delinquent impulses. Here there is little or no emotional restraint and the gang offers to the individual that which he never can realize when alone. Gangs inevitably grow out of street life and are associated with undesirable social or athletic clubs which serve as clearing houses for all sorts of demoralizing information, attitudes, and habits. They act as foci of social contagion.

Along with the gang there exists for boys and men the hang-out, which is merely an adjunct of the streets and may be equally demoralizing. It may be a confectionery store, restaurant, shoe shop, bakery, garage, moving office, or any one of a number of different types. It is a known fact that in certain areas of New York City one gang will boast because more of its members have gone to Sing Sing than from some rival gang.

Truancy.—When the child enters school he enters a new world and faces new conditions. However, the fact that practically all juvenile delinquents are children of school age doesn't mean that the school itself is responsible for their delinquency. The revolt at this age may be an indication of some deep-seated difficulty which has its roots in the child's past or in his home environment. The school must realize that the child it teaches has a life outside of that which is passed in the class room.

Hoey,⁸ looking over the life histories of 145 men committed to the New York state prisons

during two months of 1927, found that a large number of them had had their first contacts with the law as persistent truants from school sometimes at an early age. They were committed to schools for truants, had graduated to children's "protectories," from these were promoted to reformatories, and finally arrived at state prisons. Nowhere along the line had any adequate individual study been made in any case with a view to determining the underlying cause of the delinquency.

The above study was made of adult criminals and Miss Hoey became interested in facts concerning boys who were about to be committed to a school for truants. She investigated the histories of 201 such boys and found a striking similarity to the histories of the adult offenders. Both juveniles and adults came from the same type of home, the same poor neighborhoods, had experienced similar difficulties in school, had failed grades, and had been made to repeat the same subjects, term after term, finally escaping from the situation by running away from school and finding outlets in undesirable pursuits. None of the boys or the adults had been subjected to any adequate scientific study as to their mental capacities, aptitudes, or interests.

In looking over the subsequent careers of 251 boys who had graduated from truant schools, six to eight years previously, it was found that 51 per cent had become delinquent. This does not mean that the remaining 49 per cent became socially conformed, because of this number a great many were lost trace of through change of residence, failure to locate, and so forth.

In connection with a consideration of truancy a few facts relative to the state of the schools resulting in illiteracy, lack of vocational guidance, and lack of understanding of the individual child are interesting.⁴ In 1934, the schools in this country had 25,000 fewer teachers than they had in 1930, but there were one million more pupils. Building had decreased 80 per cent and the purchase of books, 20 per cent. Terms had been shortened in 25 per cent of the cities and towns, and 5,000 schools had been closed altogether. Further, in spite of the fact that 15 per cent of the school population is in some way mentally handicapped or definitely feeble-minded, the special classes for handling these children have been vastly reduced. Small wonder that truancy still is a major problem!

Child Labor.—Until recently child labor has been a great contributing cause to juvenile delinquency. Children were being forced to work under conditions designed for adults and which frequently were difficult for adults themselves to cope with. The children were forced to do work beyond their physical capacity and to labor long hours under the most unhygienic conditions for a pittance. In New York State, 4,252 boys and girls were found to be illegally employed in factories and mercantile establishments in 1928, and 845 of these were under fourteen years of age.

In addition to child labor in mills and factories, the so-called "street trades" contribute greatly to juvenile delinquency. This means the newsboys and telegraph and messenger boys. Many of these boys come from broken homes and are free from control and restraint. They frequently begin to gamble and go to improper places for amusement and often from that to stealing and disorderly conduct. "The streets and the institutions of the streets grant no degrees and give no diplomas but they educate with fatal precision."⁸

Newspapers and Magazines.—Printing lurid crime stories illustrated with objectionable pictures only tends to stimulate the depraved. In a recent number of the *Minnesota Prison Mirror*, a newspaper published by the convicts at the Minnesota State Prison, it was stated that "the newspaper of today is the chief disseminator of information on criminal methods. It is the thief's text-book and every robbery it details is a new lesson to him." Judge Cochran⁹ cites the case of a quite clever boy of fifteen who was brought before him charged with committing several thefts and burglaries, some of them with the aid of firearms and of rubber gloves to avoid leaving fingerprints. He told the judge that he had learned how to pull his jobs by reading in the daily paper of the exploits of one Richard Reese Whittemore, a notorious bandit and murderer who had been executed in Maryland.

Magazines devoted to the exploitation of sex and containing accounts of crimes of violence and the activities of gangsters are avidly read by a large part of our juvenile population, and in my opinion are inimical to the development of that degree of emotional stability necessary to

withstand the stress and the strain of modern life.

Commercial Amusement.—With the mechanization of labor and with the closing of factories as a result of our financial panic, there has been a tremendous increase in the amount of leisure time on the hands of juveniles as well as adults. Idle time hangs heavy so there has grown a widespread demand for enjoyable ways of spending it. This has resulted in the extraordinary expansion of business engaged in providing recreation on a commercial scale. Some of these businesses are highly organized and under the control and direction of individuals interested not in sociology, morality, or social psychology, but in financial profit. Vaudeville and burlesque shows, cabarets, night clubs, beer taverns, pool rooms and amusement parks have long been under the control of commercial interests not interested in the problem of delinquency. The most recent and the most potent influence has been the movies.

In a very interesting book called "Movies, Delinquency, and Crime," by Blumer and Hauser¹⁰ one finds the results of an exhaustive study conducted among the inmates of various houses of correction with a view to determining how large a part the movies played in the causation of delinquency of various types. Numerous case histories are given and interviews with inmates recorded in which it is clearly shown that sex delinquencies were the direct result of the so-called "hot" movies. Any number of girls and boys in their mid-teens are sexually aroused for the first time by salacious and lewd pictures. Many use the movies as a means of enticing an innocent member of the opposite sex to accede to their wishes. In 1930, crime and sex were the main themes in three-fourths of all the pictures produced, while mystery pictures and war pictures largely concerned with violence were next in frequency.

According to Blumer and Hauser, thirty-one different criminal techniques were learned from the movies by the prisoners studied. Among these techniques were how to open a safe by the "feel" of a dial, how to enter a store by forcing the lock with a crow-bar and screw driver, how to cut burglar alarm wires in advance during the day, how to take a door off its hinges and force way into apartment, how to break a window noiselessly by pasting fly paper

on the glass before breaking it, how to use a brace and bit to drill out a lock, how to use a glass cutter to get at a window lock, how to rent an apartment for a gang hide-out, how to force an auto door with a piece of pipe, and twenty-two others.

Recognizing some of the social forces concerned in the production of juvenile delinquency, psychiatrists, sociologists, economists, and law-enforcement officers have come to the realization that in juvenile work the idea now is to save rather than to punish the child. The approach to the problem should be on several fronts and the program is clearly, completely, and succinctly outlined in publication Number 215 of the Bureau of Publications, United States Printing office, 1935, called, "Facts About Juvenile Delinquency, Its Prevention and Treatment." Time does not permit a detailed discourse of these approaches, but they fall into four main groups: (1) the education of public opinion, (2) assistance to parents in dealing with early behavior problems, (3) social work in the schools, and (4) development of community influences and proper supervision of leisure time and activities.

Education of Public Opinion.—Public opinion must not "view with alarm," throw up its hands and cry for more stringent laws. It must be taught to give its support to a well-rounded and co-ordinated community program for the study and prevention of juvenile delinquency. Since the spirit of the community reaches after the child and brings the outside world into home life through the media of the press, the radio, and the movies, public opinion should be directed to demand the right attitude toward the enforcement of laws on the part of prosecutors, courts, and juries, for the protection of children.

Assistance to Parents in Dealing with Early Behavior Problems.—There is no substitute for home life and intelligent parenthood in the rearing of children. Through the promotion of a more wholesome home life, general education of parents in child care and training, early diagnosis of behavior problems through the establishment of habit clinics for the pre-school children and child guidance clinics for the older ones, a large number of children otherwise destined for delinquent behavior can be materially helped.

Social Work in the Schools.—We have seen how chronic truancy plays an important part in juvenile delinquency. By setting up adequate

health services, attendance departments manned by able and well paid officers, visiting teachers, special classes for the handicapped, programs for educational and vocational guidance, it should be possible to reduce juvenile delinquency by mitigating the problem of truancy.

Community Influence and Leisure Time Activities.—As the child grows older, more and more time is spent away from the home and the school in what is known as "the community." The child's home, school, church, or job cannot satisfy his budding curiosity and his need for new experiences, adventure, and achievement. He, therefore, turns to the community for this satisfaction and the community may help to make him strong and able to meet life squarely, or it may help to make him dissatisfied with his environment, rebel against it, and become a juvenile delinquent. The abuse of leisure time opportunities in the community constitutes a negative situation which acts as a criminogenetic factor in that it makes possible the operation of positive influences which promote delinquency and crime. The community should provide recreational facilities under public auspices (playgrounds, swimming pools, libraries, and so forth), leisure time activities under private auspices (boy scouts, girl scouts, camp fire girls, church clubs, boys' clubs, and so forth), and protective work. In this latter field special attention should be paid to commercial amusements, the control of which is centralized with the eye to box-office receipts rather than to child health and protection.

It is only by attacking the situation broadly and striking at the very roots of the problem by applying causal treatment that we can hope to cope with the burning question of juvenile and adult criminality.

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FACTS AND FANCIES HAVING SOME BEARING ON THE PSYCHOLOGY OF THE DELINQUENT CHILD*

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THE question of the responsibility of children brought before the court for delinquent acts is an important one, and at present a far more inquiring attitude is displayed by Juvenile Court officers, social workers, and psychiatrists, in their approach to it, than was formerly the case. A serious effort is now made to discover the cause of the delinquency, whereas the delinquent child was once summarily dealt with as one who knew right but did wrong.

In looking over studies made in the attempt to find the cause of delinquency, it is at once apparent that there are a great number of factors present in every case. This very complexity permits every layman to have his own pet ideas about the matter, and they embrace such factors as natural wickedness, constitutional make-up, environmental influences, parental mistakes in up-bringing, lack of church attendance, and the failure of our present system of educating children.

Healy¹ studied as controls a group of children who had not become delinquent and who lived in the same families and under the same general conditions, as some delinquent children, and found no single reason for the misbehavior of the delinquents. In the non-delinquents there was always a group of factors working together for better conduct trends. Certain needs, wishes, and urges that belong to the individual, find outlets and satisfactions even in unfavorable environment, and there are such variations even among the non-delinquents that it was impossible to make a category of the causes of their normal social behavior. The disinterestedness of this particular study is indicative of the fair-minded attitude which many psychiatrists are bringing to the study of conduct disorders, and the psychiatrist's method of study is probably the most direct way of learning the cause of the trouble in the individual case, that is, by studying the mental life of the child and gaining understanding of how he feels about people and things, and what thoughts are in his mind.

Now, some people may not be in sympathy

with this method of studying misbehavior, feeling that punishment is the best means of checking it. Furthermore, and in spite of what well-meaning theorists may say to the contrary, fear of punishment does deter from misbehavior up to a certain point, but that it does not entirely do so will also have to be acknowledged. The adage of "once a thief, always a thief," seems to express this idea. In fact, the most amazing repetitions of criminal acts seem quite commonplace. In some instances the power of the gang with its political protection and ramifications with rackets, dope and prostitution, may, either by contact or example, lead the youngster into a criminal career. In other cases the pressure of social life upon weak or suggestible minds that are unable to stand up against the temptation to steal automobiles or indulge in other forms of larceny seems at fault. Again, misbehavior sometimes seems to be in the nature of compulsion. Weak court attitudes toward punishment, combined with the connivings of criminal lawyers, too, undoubtedly give many young criminals the impression that even if they are detected their sentence will not be severe, or will be modified in some way.

It may be that some people think the psychiatric study of a case is just another attempt to modify or lessen the penalty. On the other hand no thinking person would hold that a fellow who committed a crime which was the expression of a delusion, due, for instance, to paresis, should be punished for it, or that the punishment was going to cure the disease; or that punishment would cure feeble-mindedness, organic brain disease, a developing case of dementia precox, or any other mental disorder which expressed itself as a misbehavior. If such an afflicted person were punished, would it not be likely that after he was released he would repeat his crime?

This view of the repetition of criminality, that is, that the repeater might be suffering from a mental disorder led to the drafting and passage of the Briggs law in Massachusetts. It provides that a person indicted for capital offense or indicted for a felony more than once

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shall be reported to the Department of Mental Disease to determine his mental condition, and the existence of any mental disease or defect which might affect his criminal responsibility.

The study of this department and of hundreds of independent investigators interested in the matter of delinquency has disclosed much that is enlightening in the psychology of the criminal. As an example, the case of a boy subjected to a great deal of attention, affection, and consideration from his parents may be given. He was a well mannered, not very active, fleshy boy. About puberty he began to wonder if he had been made a "sissy," and set about to prove to himself that he had not. He began by stealing automobiles because he felt that his school fellows would be afraid to do such a thing. Later he tried burglary. There was absolutely no necessity for either of these acts, excepting as the necessity was present in him.

Alexander and Healy⁸ have found by their investigations that some criminals' careers develop out of personality weaknesses and lack of accomplishment in other directions. The feeling of being engaged in adventures that many would fear to undertake wonderfully "bolsters up" the ego.

This adventurous type of delinquency is easily understood, and it seems somehow to strike a responsive chord, otherwise we should not be so interested in the careers of notorious criminals. In our modern days we have no frontier, no opportunity for youthful adventures at sea, and the youth of the nation is not worked as it was in the days of apprenticeship, consequently, the exuberant impulse of adventurous youth is turned too often to crime.

Less easily understood is the manner in which the controls of conduct, the moral and ethical senses, arise and develop within us and help us to become an accepted part of the social group. Some of these conceptions will have to be expressed dogmatically. We must begin with the small child who is without social or ethical consideration in his conduct. In the earliest years of his life he is entirely dependent upon his parents, who direct his activities both for his own welfare and so that his activity and presence will not interfere too greatly with the comforts of the rest of the family. Very gradually these restrictions weave a pattern for the child to follow, and the child senses what in his conduct

pleases or displeases his parents. During this stage the child begins to form an idealistic picture of his parents, based upon an imagined perfection in them, fostered, of course, by the affectionate attitude of the parents toward him. Upon this idealized picture of the parents and his love for them the child patterns that inner guide, his conscience, which tells him the difference between what is right and what is wrong in his conduct. As a result of this situation, it would seem as if lack of affection of the parent for the child, or a poor idealization of the parent by the child, might seriously distort or impair the development of the scruples which are later to govern his social conduct.

This statement of the manner in which the child developed these social scruples is the barest outline of facts. It does not take into consideration other and perhaps equally important factors, such as heredity, as they relate to the stability of the nervous system, intelligence, the degree of reaction to emotional stimulation, the general type of body structure, and the general health of the child, any of which may influence or modify the love of the parent for the child. Such physical characteristics as beauty, or deformity, or ugliness, may conceivably cause over-protection or rejection of the child with far reaching effects upon his character. In the matter of the adventurously delinquent boy, we have indicated one effect which over-protection may have upon the child.

This overindulgence of the child is not a matter that takes place overnight. It is present from a very early age and there are years of it. Likewise, when a child feels that his parents have rejected him, it is not that they have told him directly that they do not love him, it is rather that after years of criticism or punishment for perhaps some defect which the child was not instrumental in producing and has no means of remedying, the child finally feels that he is not loved. The repetition of this type of injury to the child's self esteem may bring about personality disturbances of a grave order, and result in false attitudes toward society and, consequently, social misconduct. Rejection is spoken of as "a conflict situation." Let us follow the working of a very simple case, and see one of the ultimate effects it may have on the child's behavior.

In most instances, as the child is growing, the

mother assumes paramount importance in his affections. Perhaps the child in this instance is an unusually active, mischievous boy, whose exuberance is a constant source of annoyance to his mother. Conflict is open between them, and he is punished by every means at the mother's disposal, deprived of her affection, and, unjustly disciplined, naturally the child becomes rebellious. Many of the child's thoughts as they relate to his mother are bitter, uncompromising thoughts, built on the realization that he has been harshly and unjustly treated. In his mind this constant repetition of injustice may assume the magnitude of a complex so that his thoughts are largely occupied with a sense of injury and resentment.

This state of mind may conceivably be carried to a point where it distorts his personality and character to the extent that people outside the family show their dislike of the child. At this stage, everything that happens to the child is distorted by the presence of this "complex" of being rejected and unjustly treated by his mother. A moral pattern is then built up which fits a purpose.

As an example of this type of thinking, the following may be assumed: "My mother has been unfair to me, and does not love me, she is to blame for everything. She does not love me so it does not matter what I do—even if I disgrace her she would not care." Such reflections can be carried on to the point that the fear of punishment or even the child's own safety are disregarded.

The child may utter such thoughts as, "I suppose you are satisfied now that I have hurt myself, it is what you wanted." And these thoughts become a sort of maxim, which not only justifies his conduct, but places the blame where he thinks it belongs. It may be expanded as follows, "My mother is unjust to me, so what if I am really bad and do the things which displease her? What would she care if I disgraced her by being caught stealing?"

This line of thought has actually been brought out in a child who was spiteful, but there are hundreds of other reactions which may occur depending on the nature of the child. Let me cite an example given by a great psychiatrist.⁸ An historical personage of our time, who is still living but who has retired into the background, suffered from the maldevelopment of an arm

caused by a birth injury. It is usual for a mother to whom fate has given a sickly or otherwise defective child, to try to compensate for this unfair handicap with an extra amount of love. In this case, however, the proud mother behaved quite differently. She withdrew her love from the child on account of his disability. When the child grew up to be a man of great power, he proved beyond doubt that he never forgave his mother, but he also proved by his acts of aggression to be the most ruthlessly predatory man of his age.

To revert back to the child again whose thoughts we were following, once such a complex begins to occupy his thoughts and color his conduct, he cannot emerge from this state of mind as long as the mother's treatment continues, even if he appears willing to do so. For once the mechanism of building up a retaliation of this sort begins, it is always on the basis of a personality which is warped. Usually by this time the child has begun to compensate for the treatment he has received from the mother, and to do this he develops an overestimation of his own superiority, and spitefulness results when this superiority is not recognized by others. It suggests a wish to be recognized as a person capable of accomplishing great things. Usually, such children expand under flattery and are eager to astound; they relish notoriety.

With these brief remarks, it may be discerned that once the mechanism of defense and compensation begins to occupy the mind, many of the associations which in the beginning were the sources or motives of lines of conduct are no longer in the consciousness. A child who develops such a complex with its various effects on his character and personality can only be saved from lasting criminality by correct psychiatric handling.

Similar attitudes, though in a lesser degree, are present in young people who possess special talents in art, mechanical skill, music or literature, and who are forced to occupy themselves with mediocre means of gaining a living. They may be extremely dissatisfied and turn to crime as a means of grasping wealth which will give them security and an opportunity to express themselves.

These psychological matters have been pointed out as influencing a child with normal mentality. They may act with equal force and with much

more serious and lasting consequences on one deficient because of heredity, accident or disease or a combination of all of them.

The most understandable of the defectives are the feeble-minded, an inaccurate term, because it does not convey all of the picture of the defect. The emotions of these children are generally as inadequate as their intelligence. Many of them are unable to appreciate experience or express anything like a normal degree of feeling; some of them are subject to alternations in which apathy is followed by outbursts of emotion. In general, their conduct is the expression of a flat primitive emotionalism. It is either an attempt to hurt someone by kicking, scratching, or some other form of violence, or a pestering nagging which is an invitation to have injury inflicted on them. Because many of these emotional reactions are the result of actual organic brain dysfunctions, these children react out of all proportion to conflict situations of the most trivial nature. Now if we consider two more phases of their character, which it is generally acknowledged that they possess, that of being easily led and having a poor ability to distinguish between right and wrong, we are in a position to place this child in an imaginary environment and see what may happen to it.

According to Harrington,⁴ the mentally defective child is less able to distinguish between right and wrong, and is consequently less scrupulous. He is less apt to foresee the dangers of detection and punishment when he has committed an offense, and is therefore less deterred by fear. His fearlessness often makes him the willing tool of boys who quickly sense the irresponsibility of his conduct, and often lead him into mischief. The environment of the mentally deficient delinquent may be considered under: (1) the home; (2) the neighborhood; (3) the school; (4) conditions of employment.

1. Some phases of the family life have already been touched upon, and others are such common knowledge that there is no need to mention them. In this relation, however, it is important to know what sort of a home life the feeble-minded child is likely to have. Commonly defectives are the offspring of defectives. The mentally defective parent is not likely to be able to earn a living which will provide wholesome living conditions for the child. Neither will the parents' personal habits or ethical

standards provide a good example for the child, nor their understanding or self discipline permit them to instruct or manage him. In short, the home of the defective affords neither the example nor training necessary for the socialization of the child.

2. The neighborhood is of less importance, but Shaw and others have shown that the delinquents in big cities come largely from the slum areas. The parents of such children seldom rise above poverty and naturally gravitate to the cheapest quarters, so that it is probable that the defective child will not only have a poor home guidance but will be reared in a bad neighborhood.

3. Many of the influences and companionships to which he is exposed in the neighborhood will follow him into his school life, and this may be a phase of his life which will have a harmful influence on him. If the child is unable to grasp what is being taught in school, he is likely to develop habits of indolence, and, if he is idle, he will likely get into mischief and be subjected to rebuke and punishment. Inability to do his work and the discomfort of punishment lead to truancy, as a means of escape. He may then become a street loafer and be thrown with companions who may influence him into some form of wrongdoing for which he is arrested and sent to some institution for juvenile delinquents, where he will join the ranks of the lawless. As such, he will come to look on all representatives of the law as enemies.

4. But suppose he escapes all this, without grave wrongdoing, until he reaches the age when he is employable. During periods when employment is plentiful he may make a fairly good living at unskilled labor. Economic depression however is undoubtedly productive of crime. When a person cannot work to gain a livelihood, he may be forced to steal. At best the feeble-minded person has a poor chance in competition for a living with an ordinarily endowed one, so that his chances are handicapped from the outset, which means that too often he is out of work and so is more often tempted to crime. If he is caught and punished, his chances of being anything but a confirmed criminal are slight.

Perhaps at this point it may be well to call attention to another group of cases in which the intelligence may or may not be affected harm-

fully, and in which the conduct of the child may lead to delinquency. Organic brain trouble of all types may have such an expression. Most everyone is familiar with the conduct disorders which occasionally follow lethargic encephalitis in children or young adults, and there has been considerable publicity given the mental defectiveness which follows brain disturbances at times in measles, in vaccination for smallpox, and sometimes in connection with mumps and scarlet fever. Wohlwill⁵ has shown that in the newborn destructive processes in the nature of encephalomalacia are common. Brain trauma at birth may provoke brain destruction and abnormal mentality without hemiplegia.

Of this group the chronic post-encephalitis case is the most easily recognized, for while there is nothing of a significant nature in their conduct, which, according to Mathew Molitch,⁶ may be characterized by the commission of every conceivable act, there are physical signs in connection with the disease. Such physical manifestations as changes in expression, posture, muscle tonus, associated movements, and ocular signs, tell the story. The changes in behavior may occur at any time, from a few days to a number of years following the attack. These individuals may exhibit all varieties of psychic states though their conduct appears especially to be of an impulsive nature over which they have no adequate restraint. In this group of organic cases, one would think that the lesion in the brain would produce pictures different from the so-called functional conduct disorders, but this is not the case. The only difference lies in the fact that while irritability and hyperexcitability resulting in increased physical activity and mental flightiness occur in both the organic and functional case, such a state is found more often in the organic group, but aside from encephalitis there are not necessarily neurological signs to indicate the actual brain involvement.

One other type of organic brain trouble which may give rise to delinquency, and which is not easily recognized, is that arising from organic injury to the brain following head injury. Actually, we know very little of the effect of the brain trauma in children. I have two such children under observation at present.

One of them did average work in school before injury. He was left-handed. After the injury he had to learn to write with his right

hand, which he is barely able to do, but he draws well with his left hand. He is unable to learn in school. His mental age is nine years and three months, I. Q. 68, chronological age thirteen years and eight months. His interests are at the instinctual play level. He has gotten into trouble.

The other child is totally unable to comprehend, and only within the last week has he been taught to count to ten. His age is seven years and four months, I. Q. 76, and his mental age five years seven months. This test does not give an accurate picture of his mental condition however. He is unable to dress himself, and I have observed him trying to put his right shoe on his left foot, then changing and after putting it on the right foot and lacing it, trying to put his left shoe on the foot which already had a shoe on it. He is exceedingly restless and active. His mother has observed that he has slept only one or two hours at night for periods of weeks at a time, but always after a short sleep he awakens, bright eyed and fresh, with pink cheeks, in contrast to the appearance of his brothers and sisters, who look pale and have lines under their eyes if they don't sleep at least ten hours in the night. His delinquency consisted of pegging stones through the windshields of automobiles at the instigation of some boys, thus displaying the fearlessness, lack of foresight, and suggestibility which so many mentally defective children show.

Just one other point in regard to these children with organically inferior brains. According to Schilder,⁷ in their reactions to conflict situations, they show poor control over themselves, and the effect of the conflicts seems to reach deeper and last longer. Consequently, in children so affected, we see very primitive conduct reactions, which because of the incomplete mental apparatus and consequent peculiarities lead to pictures of behavior which resemble the mania or depression or dementia precox of the adult.

The similarity of the organically inferior reaction to the real psychosis brings up another interesting psychiatric question. May crime be the expression of a delusion or an obsession?

A. W. Hackfield⁸ has written an interesting article on the work done by the psychiatrists at the Clinic in Zurich, on unintelligibly motivated crime which represents the delusional expression of an insidiously developing dementia precox.

He says that when a crime is committed which has no understandable motive, the criminal should always be subjected to mental examination. If he shows some of the primary symptoms of dementia precox, the crime has been committed because of the mental condition. The early recognition of this condition is of great medico-legal importance, because if the diagnosis can be established, it changes the complexion of the crime and also the disposition of the case. Such criminals, when committed to a hospital, show good remissions and are prevented from developing deteriorating psychosis. If they remain under medical supervision, signs of the progression or a relapse of the disease can be detected. If such a criminal is immediately given a major sentence, the stress of it usually initiates a deteriorating psychosis ending in a mental condition which necessitates life-long commitment. If on the other hand such a criminal is given a minor sentence, and is later released without medical supervision, he becomes a menace to the community, frequently committing major crimes at a later date.

Hackfield then discusses the outcome of thirty-two cases of criminals who committed murders. In the first group of ten criminals, all of whom committed their crimes while suffering from a latent or manifest insanity and all of whom were sentenced to the penitentiary, every one became permanently insane. In the second group of ten, all of whom showed signs of insanity but who were treated medically and not sentenced, eight have shown a good remission and are living outside of an institution. In the third group of twelve, who were diagnosed psychopathic personality of the type "moral insanity," but who were found responsible for their crimes and received sentences, in not one instance did the hardship of penitentiary life provoke insanity.

Undoubtedly it is important to recognize the fact that a crime which is committed for no understandable reason may be the expression of a delusional state in the criminal. Braun⁹ found, in a study of 716 cases of dementia precox, that 14.5 per cent of all the cases turned criminal sometime in their career.

Every psychiatrist knows that vagrants, especially those guilty of repeated petty offenses or even felonies, are for the most part suffering from some form of chronic mental disease.

It is not generally realized, however, that unexplainable acts in children such as repeated running away from home, impulsive cruelty, gross misconduct in school, unsportsmanlike pranks, larceny, pyromania, and kleptomania, and malicious mischief, may often indicate a deep rooted conflict, an incipient form of a psychosis or the presence of organic brain disease. It is far more desirable that such disorders should be dealt with while the behavior is an object of concern to the parents, neighbors, or school authorities, than after the child falls foul of the law, is confined, and forms the habit of crime. Sound researches and new conceptions of conduct disorders have amply assured us that the majority of delinquents are not individuals who are marked by constitutional peculiarities. Psychic elements have been discovered which alone explain the careers of some offenders, and so we have a clearer conception of the fundamental human needs and urges which come into play in anti-social behavior. Healy¹ and many others have repeatedly stressed the presence of obsessional impulses which lead to crime, deep-rooted obsessions which develop in children who otherwise appear entirely normal. Obsessional cases of this type are usually more solitary in their activities and ordinarily these children do not enter gang activities, although, because crime is easier with a companion, they may have one. Their compulsions to crime are apparently just as strongly defined as compulsions or obsessions encountered in routine practice.

When these children are asked to explain the reason for their acts, they seem totally unable to give any. The acts seem to be entirely impulsive, but mental examination has revealed in many such cases that there is cause for the act, either in the nature of a conflict situation, or in the presence of organic disease, or psychosis. It is in these cases that there is a splendid field for psychiatric work.

In boys the most commonly encountered impulsive act is running away from home. As far as we have been able to discern, this is always done on a basis of the wish to escape from some unhappiness there, although the same flight has been observed in epileptics, and following head injuries.

Another frequently encountered impulse is that of setting fires. It is encountered most frequently in youngsters who find themselves

placed in unbearable situations. Notwithstanding the actual impulsiveness of the act of fire setting, the pyromaniac does it with a certain refinement and premeditation, so that he is not immediately detected. He can never explain the act, but when he sets fire to the house in which he lives, it is usually because of his wish to escape from the misery he finds there. When he sets fire to property other than his home, some other reason must be sought. In some instances it is the expression of delusion. In other instances it is an unhappy sexual experience or the aspiration to be loved by an inmate of the house, which is impossible of fulfillment. Some children apparently are stimulated sexually by setting or watching a fire.

Alcohol plays a great part. Some people set a fire during some period of every spell of inebriety, without ever being able to advance a plausible reason for doing it. Menstruation seems to furnish a disposition toward the impulse. The act is sometimes preceded by distinct moodiness with anxiety, "home-sickness," or digestive disturbances. In some instances the anxiety seems to be due to the conflict between the wish to perform the act, and their morality which tells them it is wrong. In some cases they seem to be in a twilight, dreamy state, in other cases they put the impulse into effect immediately. Occasionally the impulse is followed only once, and that often about the time of puberty, the person leading a normal life ever after. In others, the crime may be habitual.

The matter of arson has been dwelt upon at some length, but what is true of it as an impulsive crime is also true of other impulsive ones, such as the impulsive poisoners among women, the "jack the rippers" in men, the pathological liars, poison pen letter writers, "peeping toms" and many others.

The criminalistic impulsive disorders, as has been said, offer the very greatest opportunity for the psychiatrist. With offenders of this type, no ordinary legal or penal measures deter. No ordinary treatment cures. Most of them are repeaters. In many cases, there is, in connection with the offense, an inner need of the individual to be subjected to punishment. As G. K. Chesterton says, "The world is filled with people who feel an inner need to be crucified, as an outward expression of atonement for their guilty anxiety."

Unfortunately with punishment comes a renewed permission, so to speak, to offend. Punishment and suffering mean nothing to such a person if it is not legal punishment. This need for atonement has its origin in a fundamental personality disorder, and is something that the proper treatment may relieve.

To briefly restate the points of this paper which should be emphasized, stress should be given to the many causes which contribute to a given case of delinquency. Instances were cited of the manner in which the parents created conflicts which resulted in distorted ideas of social conduct and personality weakness in the child. These bad beginnings in some instances lie dormant until about puberty, that period when the child's spirit is too big for its body, and it expresses itself in delinquency. In other instances, the complexes express themselves early as attempts at retaliation, in impulsiveness or perhaps obsessions. These conflict situations have a far more lasting effect on children with inferior mental equipment. The home life may exert a harmful influence both from a standpoint of mismanagement of the child, as well as a poor ethical and moral atmosphere. Environmental conditions as found in neighborhood companionships, school misunderstandings and economic difficulties were touched upon, as well as crime as an expression of insidious or frank insanity. In general terms, the substance of all this can be said in the following. The two methods of making the child conform to social requirements are the extremes of over-gratification as a means of reward, and punishment and rejection as a means of intimidation. As long as either is carried too far in the training of children, delinquency will be a product of our social life.

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REPORT ON DIAGNOSIS AND TREATMENT OF RHEUMATIC DISEASES IN EUROPE*

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I RECENTLY had the opportunity of visiting a number of clinics in England and on the continent of Europe for patients who have arthritis and of obtaining the views of about fifty of the leading European specialists on rheumatic diseases. In this report is presented a brief summary of their opinions on the diagnosis but particularly on the treatment of the more common rheumatic diseases. In this country those interested in the various forms of arthritis may differ considerably in their opinions on etiology and classification but they usually agree on their general plan of treatment. The therapeutic programs advanced abroad exhibit somewhat greater individuality.

The greatest advance in the past thirty years in the study of arthritis and related diseases has been in separating the arthritides into small groups and in distinguishing one group from the others, as clearly as possible, in the following respects: the clinical pattern, pathologic alterations, laboratory data, prognosis, and, when possible, the etiology and treatment in each group. This process of definition must continue. However, clinicians seem to have strayed at times from the path provided by precise pathologic data and to have described clinical entities for which convincing pathologic or laboratory support is to date lacking. I refer to the establishment in Europe of such poorly defined entities as "tuberculous rheumatism" (in contrast to tuberculous arthritis), "endocrine or polyglandular arthritis," and so forth. It remains to be seen whether they can be placed on a more solid foundation than at present.

Chronic Atrophic (Rheumatoid, Infectious) Arthritis

In this country the type of arthritis variously referred to as "atrophic," "rheumatoid," "infectious" or "proliferative" arthritis is characterized by swollen, painful joints, muscular atrophy, vasomotor alterations affecting the extremities,

loss of weight, anemia, rapid erythrocytic sedimentation rate, articular destruction and decalcification of juxta-articular bones. Subdivisions of the large group of conditions known generally as "chronic atrophic arthritis" are frequently made in France and England. The idea that the conditions are caused by streptococcal infection has been gaining favor in this country. In Europe, however, this theory is not so highly regarded. Crowe (London), for one, was continuing his investigations on the theory of infection. As a result of making cultures from many foci on a special chocolate medium and on slants made from the patients' own blood, he was convinced that staphylococcal infections cause atrophic arthritis. Two others who expounded the infectious theory have demonstrated that the antihemolysin content of the serum of patients who have infectious (atrophic) arthritis is high, and that if patients have hypertrophic (senescent) arthritis the antihemolysin content of the serum is low. The investigators have considered this to be indirect evidence that infections with hemolytic streptococci are associated with atrophic arthritis. Many of those who expressed the belief that infection must play a rôle, did not, however, contend that a specific infection was necessary. It was their opinion that any one of several infections that produce atrophic arthritis in one case may cause fibrositis in a second, rheumatic fever in a third or may produce no symptoms at all. Their belief, they said, was that the individual reaction of the body may be of more importance than the infecting bacteria in determining the type of rheumatic disease which will develop.

Atrophic arthritis is generally subdivided into "rheumatoid" and "infective" arthritis in England and France. It is claimed that patients who have infective arthritis more frequently give histories of infection immediately preceding the onset of the arthritic condition, are less seriously affected, and respond more readily to removal of foci than do those who have rheu-

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matoid arthritis. The latter lose more weight and strength and present more vasomotor alteration than do those with infective arthritis. According to Scott (London) roentgenograms of both groups of patients may give evidence of destruction of joints. However, roentgenograms of patients who have rheumatoid arthritis reveal signs of decalcification of all bones, while those of patients who have infectious arthritis demonstrate decalcification only of the epiphyseal ends of the bones that make up the involved joints. Gordon and Burt (Bath) expressed the belief, as do many Americans, that, just as is true of infective arthritis, rheumatoid arthritis is an infectious disease that has attacked a patient whose resistance is lowered. They are of the opinion that the characteristic vasomotor alterations and loss of weight which may precede the onset of the arthritic symptoms of patients who have rheumatoid arthritis are the early manifestations of their lowered general resistance.

Treatment of Chronic Atrophic Arthritis

The importance of physiotherapy in the treatment of atrophic arthritis was stressed by nearly all of the European physicians whom I met. Robinson (London) used only diathermy. In the spas, warm baths in natural water were used. The physicians also claimed that benefits were obtained from the sulphur contained in the water or from its radio-activity. Others used sprays or mud baths. Massage and exercises usually followed each treatment. Clinics in conjunction with physiotherapy units were established in many of the leading cities to care for ambulatory patients. The hours of treatment were arranged so that patients could continue their work. Charges were minimal except when the patients were able to pay the full value of each treatment. I had an opportunity of observing the units in London, Amsterdam, and Glasgow and while there I was again impressed with the great value of physiotherapy, especially from the standpoint of protection against deformity.

Obvious foci of infection were removed conservatively. Improvement following removal of foci was reported to be much more common in cases diagnosed "infectious arthritis" than in those called "rheumatoid arthritis." Streptococcal

vaccines had been tried by twenty-one of the physicians I met. Nine of them occasionally used autogenous or pooled vaccine; the others had discontinued use of these preparations because of disappointing results. Crowe (London) reported good results from injections of his autogenous and pooled vaccines. There is considerable disagreement among English physicians about the merits of the Crowe vaccine. Typhoid vaccine was used by five of the physicians and bee venom by two. All seven felt that this nonspecific treatment was of distinct help in controlling atrophic arthritis. Injections of colloidal gold were widely used in France and Great Britain in treatment of the condition called "infectious arthritis" and of that called "rheumatoid arthritis." The opinions were that it helped control the condition in some of the cases in which conservative treatment failed. The initial injections were small, the increase gradual and the treatment was continued for about three months. The patients were kept under close supervision. Of eleven physicians who were using colloidal gold, nine were encouraged and two were disappointed with their results. I saw one patient who had very severe dermatitis and was told about four other cases in which one of the following conditions had developed: severe hepatitis, iritis, severe albuminuria, and hematuria complicated by uremia. One death from uremia also had been reported. Ray (London) well expressed the views of several others in saying that he used colloidal gold as a second or third line of attack in case more conservative treatment was not effective.

Scott (London) said that he applied six light doses of roentgen rays to the backs of patients who had atrophic arthritis. The resultant clinical improvement and the decrease in the sedimentation rate of erythrocytes had convinced him that such treatments nonspecifically increased the resistance of patients who had arthritis as well as of those who had several other diseases. According to Robinson (London) pelvic diathermy is the most effective way of treating atrophic arthritis. He considers the pelvis (prostate gland, uterine cervix or adnexa) as the most common foci of infection.

Hyperparathyroidism was diagnosed frequently by two of the physicians, in cases clinically indistinguishable from atrophic arthritis,

if progressive ankylosis of joints or scleroderma was present. Elevation of the concentration of serum calcium was not often present. Their treatment for these patients was parathyroid-ectomy. Two others were injecting parathyroid extract. It is difficult to understand how two such physiologically opposite treatments can give the encouraging results reported by these clinicians.

"Tuberculous rheumatism" is, according to some French and English physicians, a clinical entity different from tuberculous arthritis. The clinical concept of the latter is familiar to all; biopsy of affected joints presents the typical microscopic picture of tuberculosis, and if guinea-pigs are inoculated with fluid from the affected joints, tuberculosis develops. In tuberculous rheumatism, bacilli of tuberculosis are seldom or never found on microscopic study of affected joints and in examination of guinea-pigs inoculated with joint fluid the organisms seldom or never are recovered. The clinical pattern usually ascribed to tuberculosis rheumatism was that of polyarticular arthritis, either acute or chronic, a family history of tuberculosis, demonstrable tuberculosis elsewhere than in the joints, calcified lymph nodes, fibrosis of the lungs, a history of pleurisy, considerable synovial and capsular reaction around the affected joints, tenovaginitis, much associated loss of weight and weakness, positive Mantoux or von Pirquet tests with resultant transitory flare-up in the joints after the test, and increased opsonic index. Two of the physicians had sent blood of their patients to Löwenstein and had received reports that cultures for bacilli of tuberculosis were positive in 10 per cent of them. This work has been repeated in this country but Löwenstein's findings have not been confirmed. Treatment advocated for tuberculous rheumatism was essentially the same as that for atrophic arthritis except that for tuberculous rheumatism colloidal gold was used more frequently and small injections of tuberculin were given.

Of sixteen of the physicians who were interested in tuberculous rheumatism, four felt that such a diagnosis was not justified. Of the many cases that I saw, in only one was the result of inoculation of a guinea-pig reported to be positive. As far as most American physicians are

concerned, so-called tuberculous rheumatism is indistinguishable from chronic atrophic arthritis. Further investigations of tuberculous rheumatism will be of interest, but as yet convincing proof that such an entity exists is lacking.

The chronic progressive arthritis that occasionally follows gonorrheal infections was considered by seven of the physicians whom I met, to be attributable to the antecedent gonorrheal infection. They did not consider the finding of gonococci in smears to be necessary to diagnosis. Their treatment consisted of local application of heat in the form of diathermy, hot packs or hot baths, or general application of heat by radiotherapy or baths. Six physicians used gonococcal vaccine. None of these physicians were attempting culture of gonococci for diagnosis nor in treatment were they using hyperpyrexia sufficiently extreme to kill the gonococci. In America, cultures have been of considerable help in separating the patients who have chronic gonorrhea from those who have atrophic arthritis which has happened to develop after a gonorrheal infection. Fever therapy usually stops the active gonorrheal infections but if the condition is atrophic arthritis, the improvements are less apparent.

The diagnosis of syphilitic arthritis was used by six physicians to include almost all cases of progressive arthritis in which the Wassermann reaction was positive or in which there was a history of syphilis. They considered their diagnosis established if the patients responded favorably to arsenic, bismuth or potassium iodide.

Hypertrophic (Senescent, Osteo) Arthritis

There was no uniformity of opinion as to the cause of hypertrophic arthritis. Opinions regarding the cause of hypertrophic arthritis were given as: trauma, age, streptococcal infection, gout and thyroid or ovarian deficiency. Streptococcal infections were considered by Crowe as the cause of hypertrophic arthritis. He treated his patients with streptococcal vaccine. Robinson believed the condition attributable to ovarian and thyroid deficiency; in treatment of his patients he gave small doses of thyroid extract and in an attempt to stimulate the ovaries he used pelvic diathermy. The most widely used treatments were physiotherapy or spa treatment, weight reduction when indicated, and small doses of thy-

roid. Articular bone punctures were advocated by two physicians, one in Paris and one in Amsterdam. Postoperative improvement was assured by one physician. The other had followed ten or twelve of his patients and concluded that the condition of a few of the joints operated on had improved; the arthritis of several of the joints operated on had progressed. Local roentgen therapy for hypertrophic arthritis was reported by four physicians as giving improvement. The physicians who diagnosed some cases with Heberden's nodes and transitory bursitis of the shoulder as gout, restricted the intake of purine of many patients who had hypertrophic arthritis. This will be discussed more fully later.

Rheumatic Fever

Schlesinger and Signy* (London) have centrifuged the pericardial fluid of patients who had died of rheumatic fever. In the sediment, small bodies of uniform size were seen under dark-field illumination. They identified these bodies as organisms and said that they were a virus. They stated that specific agglutinins are present in high titer in the serum of patients who have rheumatic fever. Serum of patients who had atrophic arthritis and scarlet fever contained very little agglutinin except for one of the patients who had scarlet fever and who at the time was having pains in the joints. Further investigations with the "virus" had not been carried out when I was there.

The usual treatment advocated was prolonged periods of rest, and administration of calcium-aspirin. The calcium-aspirin was considered to be just as effective as salicylates and less upsetting to the stomach. The attitude toward removal of foci of infection was conservative; vaccine therapy was not widely accepted. Frazer and Walsh (London) were treating patients who had rheumatic fever, pneumonia, septicemia and erysipelas with intravenous injections of very finely suspended 5 per cent olive oil in water. Frazer reported that the temperatures of patients who had pneumonia, septicemia and erysipelas returned to normal a few hours after the injection of the olive oil. Subsequent roentgenograms of the lungs supposedly showed that the consolidated pulmonary tissue went through the

usual stages of resolution noted in cases in which treatment with olive oil had not been employed. Frazer reported that for patients with rheumatic fever, from four to six injections were necessary the first day and usually two daily injections for a week before the patient's temperature remained normal. He explained that the beneficial results from injections of olive oil in these cases are the apparent clinical improvement and relief from severe toxemia. In Frazer's opinion the probable mechanism of detoxification is the adsorption of the toxins on the surface of the very small globules of olive oil.

Fibrositis

Fibrositis is one of the most common of the rheumatic diseases seen in England and Scotland. It is seen in the transitory acute stages as well as in the chronic fibrositis and panniculitis, both of which may be present for years. In the opinion of several physicians of the countries named, the contractions of fibrous tissue only occasionally were of concern, and deformities of joints only rarely occurred unless there was an associated hypertrophic arthritis. Infection was believed to be the cause of most of the cases of fibrositis. Stockman (Glasgow) frequently obtained the history that an attack of influenza, a sore throat or some other infectious condition preceded or was coincident with the onset of the fibrositis. Acute trauma or recurrent slight trauma was considered of etiologic importance in some cases, and was believed to be important as a contributing etiologic factor in many other cases. Sluggish circulation of blood and lymph, resulting in stagnation of unknown waste products, was commonly thought to explain the stiffness and aching of which the patients who had fibrositis complained. The opinions that deficient circulation as well as dysfunction of the thyroid or ovaries are of importance were based on impressions rather than on investigation.

Subcutaneous nodules were frequently felt by six of eleven physicians who looked for them. The microscopic appearance of the nodules was similar whether they were associated with traumatic fibrositis, infectious fibrositis, or whether they were found in examination of patients who had infectious arthritis. During the subacute phase, the principal cellular reaction was mononuclear. During the chronic stage, the nod-

*Schlesinger, Bernard, Signy, A. G., Amies, C. R., and Barnard, J. E.: *Etiology of acute rheumatism: experimental evidence of virus as the causal agent.* *Lancet*, 1:1145-1149, (May 18) 1935.

ules were made up mostly of a proliferation of fibrous tissue. When the reaction was mainly subcutaneous (panniculitis) the groups of fat cells were separated by large bands of fibrous tissue.

The treatment was mainly heat and massage, to hasten the absorption of the tender nodules and increase local circulation. Stockman (Glasgow) surgically removed some of the tender nodules to relieve pain. Removal of foci was conservatively applied in the cases of acute and subacute fibrositis. Vaccines were not used. Five physicians were using histamine by injection or ionization; only two were encouraged by their results. Robinson (London) expressed the belief that pelvic diathermy gave his patients the most relief. The patients who had panniculitis and were overweight were given a weight-reduction diet and thyroid.

Gout

Gout was of particular interest to fifteen of the physicians with whom I talked. Five used much the same criteria for making the diagnosis as we use at The Mayo Clinic. They considered the only proof of the presence of gout to be the demonstration of a tophus containing crystals of sodium urate. However, undoubted gout was recognized in most cases early in the course of the disease because the patients gave histories of recurrent episodes of severe pain, redness and swelling of a joint, the condition of which returned to normal in from three to fourteen days without any apparent residual damage. Gout was considered to be much more common among men than women. The first metatarsophalangeal joint was considered to be most frequently affected. Ten physicians also diagnosed gout in a group of patients whose complaints were of painful Heberden's nodes and transitory bursitis of the shoulder; in this country, cases of this sort are considered to be examples of senescent (hypertrophic) arthritis. In order to include this condition in the category of gout, the ten physicians mentioned emphasized certain points in which the two are similar: Both

are more frequent in middle age than at other times of life. In both, a family history of a similar type of arthritis affecting relatives occasionally can be obtained. In both, concentration of uric acid in the blood occasionally reaches a level considered to be high normal. Roentgenologic evidence of punched-out areas in bones near affected joints may be found in both. Most patients who have Heberden's nodes and bursitis, however, do not give histories of repeated acute attacks of arthritis; their condition is not made worse by a provocative test consisting of a diet high in purine, nor do tophi develop. (I am not as yet willing to include such cases under the diagnosis of gout.)

The treatment for acute attacks of gout usually consisted of a diet low in purine and administration of colchicum. Between attacks the physician usually advised moderate restriction of the intake of purines. Pisini (Florence) was unfamiliar with the work done recently by Locke in this country on the high carbohydrate diet for gout; nevertheless he prescribed a high intake of sugar for his patients who had gout. If they could not take sugar by mouth he gave it intravenously or by rectum. On such a regimen he noticed definite improvement. Certain foods to which a patient who had gout was sensitive were considered of great importance in the precipitation of an attack of gouty arthritis. Foods to which the patients were sensitive were determined by obtaining a careful history. Joltrain (Paris) injected intradermally aqueous solutions of common foods, in studying his patients who had gout. He eliminated from their diet the foods to which they showed cutaneous hypersensitivity, regardless of the purine content of the foods. Of ten physicians with whom I discussed cinchophen in the treatment of articular gout, only four used it during the acute attack and only one in the interval between attacks. Although they recognized its therapeutic value and had not themselves seen a case of atrophy of the liver from its use, most of them were afraid to use it because of what they had read regarding its toxic effects.

LYMPHOGRANULOMA INGUINALE*

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LYMPHOGRANULOMA inguinale is a disease which often is venereal in origin, has a variable incubation period, a primary sore, involvement of the lymph glands draining the primary sore, a more or less specific diagnostic test, and often has complications following or accompanying the local lymph gland involvement. Many observers have rightfully objected to calling the infection lymphogranuloma inguinale, but common usage seems to indicate that this name will persist. The disease need not be venereal in origin and any group of lymph glands may be involved.

Lymphogranuloma inguinale has occupied a major position in the recent dermatological literature of the world. In this country most of the cases were reported from the southern states or northern cities with a large negro population. As far as I know, the first six examples of lymphogranuloma inguinale to be reported from Saint Paul were seen at the Ancker Hospital during the past year. This fact alone is a good reason for bringing lymphogranuloma inguinale to the attention of the general medical public of Minnesota. In this article no attempt will be made to review the voluminous literature on lymphogranuloma inguinale, and it is suggested that those readers who desire more extensive and detailed information peruse the writings of Cole,¹ Sulzberger,² Durand Nicholas and Favre,³ Hellerström⁴ and others.

When the disease is venereal, the incubation period of five days (Case 4) to three weeks post-coitus, is followed by a primary lesion which may pass unnoticed by the patient. The primary sore may appear as a transient herpetic vesicle (Case 2), an ulcer or erosion (Cases 1, 4, and 5), a urethritis (Case 3), or a nodular lesion resembling a syphilitic chancre. The only woman in this group did not notice a primary lesion.

Symptoms of fever, malaise, headache, and muscle pains did not appear until the lymph nodes began to enlarge. The fever varied from

100 to 102 F. and continued until free drainage had been established. All of the patients complained of pain on walking. The males, all of whom were laborers, found it necessary to quit work because they could not do manual labor.

The lymph gland enlargement is in progress when the primary lesion is still present. Some of the patients noticed or felt the gland enlargement before the primary sore was seen. The period from noticeable, painful adenitis to suppuration is usually two to four weeks. The glands draining the primary lesion, enlarge, become hard, matted, and painful. Later the skin becomes reddish purple and shiny as the lymph nodes break down and suppurate. The glands in the inguinal region may reach the size of a fist or larger before the skin is ruptured and a sinus is formed. Cole stated that the glands form multiple fistulous openings differing from the suppurating chancroidal bubo which forms a large single opening. Other nodes become involved and go through the same cycle. Cole said that the local lymph node reaction may be associated with a generalized lymph node enlargement, an enlarged spleen, and polyarthritides. Hellerström noted accompanying erythema nodosum and erythema multiforme-like eruptions, urticaria and scarlatiniform eruptions.

Lymphogranuloma inguinale in the female generally assumes different characteristics because of the lymph drainage of the female genitalia. The lymph from the clitoris and external vulva drains into the inguinal lymph nodes, while the lymph from the vaginal mucosa drains into the lymph nodes around the rectum. The female with lymphogranuloma inguinale may show elephantiasis of the vulva, ulceration of the rectum, perineal body, anal orifice, and labia, or multiple rectal fistulas which may be followed by scarring of all the parts and stricture of the rectum and anus. Some think that the infection can be harbored in the female as a saprophyte. Sènèque⁵ summed up the types of inflammatory stricture of the rectum seen in lymphogranuloma inguinale in the following four forms: a pure stricture limited to the rectum, a rectal stricture

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with elephantiasis of the external parts, a rectal stricture complicated by fistulas, and rectal stricture with pelvic cellulitis.

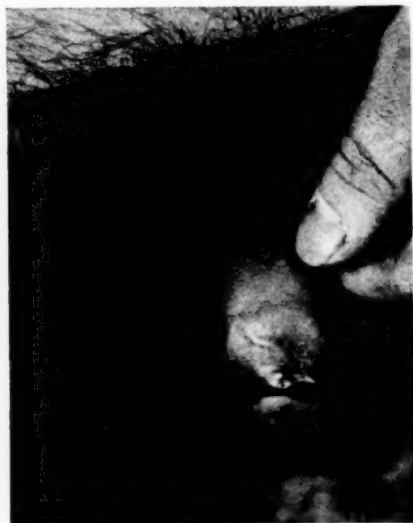


Fig. 1. Case 1. Initial lesion of lymphogranuloma inguinale appearing as a superficial, ulcerating papule on the prepuce.

Frei Test.—The diagnosis of lymphogranuloma inguinale depends to a great extent on the Frei³ test. Pus is removed from a suppurating lymph node which has not ruptured in a patient who has lymphogranuloma inguinale, but who has never had a chancroidal infection. The pus is diluted, sterilized, and tested on known cases of lymphogranuloma inguinale. An intradermal injection of .1 c.c. of material is used and a red papule at least .5 cm. in diameter appears if the test is positive. The test is often negative in the first three weeks of the disease, but when positive it probably remains so throughout life. The Frei test is not specific for lymphogranuloma inguinale and some observers⁷ think that it gives non-specific reactions in as high as ten per cent of cases.

Case Reports

Case 1.—A. M., a white laborer, aged twenty-eight, stated that he noticed a small pinhead-sized superficial erosion on the prepuce about the last week in October, 1934. This lesion was painless, exuded a slight amount of serum and healed in about ten days. The penile lesion was followed in about four or five days by lymphadenitis on the right side. The glands were painful, matted together, and increased in size until a

mass about the size of an egg was formed. In two weeks the mass became fluctuant. It was incised, a small amount of pus drained, and the wound was packed with iodoform gauze. Frei tests were strongly positive three weeks after the onset and tests on controls were negative. Frei antigen was used therapeutically until January 1, 1935, but no improvement was noted. The patient was hospitalized, warm, wet packs were applied, and the granuloma seemed to have healed by January 20, 1935. When he returned to the Ancker Hospital, on March 15, 1935, the lymphogranulomatous mass was larger and more painful than on any previous occasion. On this admission small doses of filtered x-rays were given at weekly intervals in addition to wet packs, drainage, and rest in bed. Each treatment of x-rays given to all of the patients consisted of approximately 160 roentgen units with 4 millimeters of aluminum filter. Six treatments were given and the patient discharged as cured on May 20, 1935. There had been no recurrence up to March 15, 1936.

The past history gave no important information. The patient denied having sexual relations with anyone except his wife, who, after repeated exposures even when the primary lesion was present, did not contract the disease.

Darkfield examinations of the serum from the primary lesion for *spirocheta pallida* were repeatedly negative. Ducrey bacilli were never found in the pus. Blood Wassermann reactions were repeatedly negative.

Case 2.—R. P., a negro laborer, aged forty, noticed a penile lesion described as a small water blister appear on the dorsum of the prepuce about November 1, 1934. This lesion was accompanied by painful left inguinal lymphadenitis. The lymph glands increased steadily in size and in February, 1935, a matted, painful group of glands about the size of a large egg were present. The central portion of the mass was fluctuant. The glands were incised, pus drained freely, and the wound packed with iodoform gauze. The Frei test was strongly positive on many occasions and negative in controls. The patient was given Frei antigen therapeutically for six weeks and the disease continued to progress. From February 15, 1935, to March 20, 1935, neosalvarsan and tartar emetic were used without success. The patient was hospitalized, wet packs applied, and small doses of filtered x-rays were given at weekly intervals for seven weeks. The granuloma had healed by May 20, 1935, and when the patient was examined on March 15, 1936, there were no signs of recurrence.

The past history disclosed that he had been treated for syphilis at the Mayo Clinic during 1920. He had a urethral discharge in 1930 which he treated himself. The patient admitted frequent relations with both colored and white prostitutes.

Pus from the lymph glands showed no evidence of Ducrey bacilli. Blood Wassermann reactions were repeatedly negative.

Case 3.—M. C., a negro laborer, aged forty-five, noticed a bilateral painful inguinal adenitis about January

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1, 1936. The nodes became matted and grew progressively larger and more painful. The patient had sexual intercourse with a colored prostitute in the latter part of November, 1935. There was no penile lesion noted, but he had a milk colored, watery urethral discharge for a week before the adenitis appeared. The nodes in both inguinal regions were the size of a fist and contained a large amount of pus. The patient complained of constipation and extreme pain on defecation, but proctoscopic examination was negative. Ducrey bacilli were not found in the pus. Frei tests were repeatedly positive. Blood Wassermann examinations were repeatedly negative. Gonococci were not found. The patient was hospitalized on January 28, 1936, wet packs were applied, and drainage was established. After receiving four x-ray treatments, the patient left the hospital on February 28, 1936, with the wounds healed and the granulomatous masses no longer in evidence.

Case 4.—E. J., aged thirty-five, a white laborer, was first seen on January 10, 1936, with a superficial ulcer at the urethral meatus which was indurated and exuded serum. The ulcer appeared five days after intercourse with a white prostitute. A bilateral, olive to small hen's egg sized, tender inguinal adenitis was present. The patient stated that the adenitis appeared a day or two before he noticed the penile ulcer. There was a slight milky, urethral discharge seen when the erosion appeared, and this discharge continued for six weeks. The ulcer and adenitis remained about the same for a period of four to five weeks. About the beginning of the fifth week, the penile ulcer began to enlarge and a massive edema of the prepuce appeared. The first Frei test done on January 20, 1936, was negative. The remaining Frei tests, done after January 28, showed an increasingly positive reaction. No Ducrey bacilli were found and smears were negative for gonococci. Darkfield examinations for spirocheta pallida were repeatedly negative. The blood showed a positive Wassermann reaction on February 7, 1936 (about the seventh week after the onset of the adenitis), and a macular secondary syphilide appeared on the skin at that time. The patient has received treatment for syphilis since February 7, 1936, but no x-ray therapy to the glands. On March 30, 1936, the penile erosion was healed and the inguinal lymph glands were pea to bean sized and firm. The Frei test still was strongly positive.

Case 5.—J. R., a white laborer, aged thirty, was first seen on October 1, 1935, with a painful, fluctuant, left inguinal bubo and a small, pea-sized, painless ulcer of a week and a half duration on the mid-dorsal portion of the prepuce. There was a bean-sized, firm nodule to the left of the midline, midway on the dorsum of the shaft of the penis. He stated that he had noticed a urethral discharge about one month previously which was followed in a few days by the left inguinal adenitis. He denied having had sexual relations with anyone except his wife. Darkfield examinations of the

ulcer were repeatedly negative for spirochetes. No gonococci or Ducrey bacilli were found on repeated examinations. The first Frei test on November 26 was



Fig. 2. Case 6. Lymphogranuloma inguinale in the female showing massive edema of the vulva and accompanying lymphadenitis.

positive and since then there has been a more marked reaction with each test. Blood Wassermann tests were repeatedly negative. The bubo was incised but the disease continued to progress until he was admitted to the hospital on December 17, 1935. He received six x-ray treatments at weekly intervals and was discharged from the hospital on January 28, 1936, when the granuloma had healed. There was no recurrence when the patient was last seen on March 17, 1936.

Case 6.—A white woman, aged twenty-five, and the wife of J. R., Case 5, first complained of a painful induration and edema of both labia majora and left inguinal adenitis, on November 20, 1935. She was first seen at the hospital on December 6, 1935, when the adenitis was incised and drained. There was no history or evidence of a primary lesion. The patient had had sexual intercourse with her husband shortly before the edema and adenitis was noted. The husband had a penile ulcer and inguinal adenitis at that time. The blood Wassermann reaction was repeatedly negative. Smears were negative for gonococci and Ducrey bacilli on many occasions. The Frei test was moderately positive on December 8, 1935, and strongly positive since January 1, 1936. The patient was given six x-ray treatments using the previously mentioned dosage. She also was kept in bed, wet packs were applied, and free drainage was established. The granuloma was healed on March 10, 1936.

Hellerström and Wassin⁵ proved the disease to be caused by a filtrable virus. The pathology is that of a non-specific chronic infectious granuloma closely resembling tuberculosis and syphilis.

The diagnosis was comparatively simple in all of these cases with the exception of Case 4. Here the two possibilities are evident: first, the



Fig. 3. Positive Frei test reaction seventy-two hours after injection.

patient was infected with lymphogranuloma and syphilis at the same time and the syphilitic chancre developed at the site of the primary lesion of lymphogranuloma inguinale; or, second, the patient had syphilis with a positive Frei test. The sequence of events and the persistently positive Frei test, after extensive treatment for syphilis would be more in favor of the first view.

Lymphogranuloma inguinale should always be thought of when a patient has a suppurative inguinal adenitis, rectal or anal stricture, a history of a transitory primary lesion, and a positive Frei test. Granuloma inguinale is a disease of the skin, not of the lymph nodes, and the only confusing point is in the similarity of the names. The nodes in syphilis are hard, shotty, and do not suppurate; also there would be other evidences of syphilis and probably a positive

blood Wassermann reaction. Chancroidal infections are more acute, Ducrey bacilli can be found, autoinoculation is positive, and there is a positive Ito-Rienstierna reaction and a negative Frei test. Hodgkin's disease, tuberculosis, bubonic plague, tularemia, malignant growths, and pyogenic infections must be ruled out.

Many types of treatments have been recommended for lymphogranuloma inguinale. All of my cases, treated in the following manner, responded favorably: rest in bed, establishment of drainage, warm wet packs, and 160 roentgen units of x-rays with 4 millimeters of aluminum filter given at weekly intervals for six weeks.

Summary

Six cases of lymphogranuloma inguinale are reported with the details of the clinical course and therapy. This condition is an infectious disease most commonly involving the pudenda. All patients with a persistent suppurating lymphadenitis, rectal stricture, or unexplained chronic inflammatory changes in the pelvis should be subjected to the Frei test with lymphogranuloma inguinale in mind.

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DEATH FROM ASTHMA*

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OLIVER WENDELL HOLMES, as quoted by Osler, considered asthma "the slight ailment that promotes longevity."

Before this Society, in 1930, Dr. C. B. Wright⁸ reviewed the literature and reported a case of fatal asthma, which but served to emphasize the rarity of death from this disease without complications. Hüber and Koessler³ reviewed the subject in 1922 and gave a summary of the pathology of the condition, based on twenty-one cases. The count has been increased in the last decade and Dr. Rudolph Koucky,⁵ in a personal communication, states that he has found fifty-two cases in the literature and thirty-five cases in the autopsy records of the University of Minnesota from 1914 to 1934. Of these nine have insufficient material preserved upon which to base a diagnosis. Ten are undoubtedly bronchial asthma without complications, while sixteen of the twenty-six, with adequate material for study, died of complicating conditions. This study will be published in detail at an early date. His material has proved helpful in furnishing a basis for differentiation between bronchial asthma per se, an allergic condition, and symptomatic asthma and will be referred to again.

Michael and Rowe,⁷ in 1934, in reporting two cases of bronchial asthma, were able to collect twenty-nine complete autopsy reports and reviewed the pathological studies. They believe that death during attacks of asthma is not especially infrequent and cite forty-nine cases, including the above twenty-nine with complete reports and twenty more without microscopic studies, and say that most allergists have attended patients who have died during attacks, as attested by personal communications.

The clinical diagnosis of bronchial asthma is not always corroborated by the pathologic studies. The recent interest in allergy as a cause of disease has clarified our knowledge somewhat. Spasmodic dyspnea, relieved by adrenalin and associated with eosinophilia and other signs of

allergy, occurring without underlying cardiac or pulmonary abnormality, would seem to characterize the disease picture of bronchial asthma. From the standpoint of the pathologist the lung must show macroscopically:¹ (1) emphysema; (2) increased thickness of the walls of the bronchi with a narrowing of their lumina; (3) increased thickness and infolding of the mucous membrane; (4) excessive mucus or the presence of plugs of tenacious mucus and fibrin in most bronchi; (5) dilatation of smaller bronchioles and alveoli. Microscopically there are: (1) increased thickness and infolding of the mucous membranes of bronchi larger than 2 to 3 mm.; (2) infiltration of the mucosa, submucosa, mucous glands and muscles and at times the cartilage with eosinophiles, plasma cells and lymphocytes; (4) hypertrophy of the muscles. Michael and Rowe also found a myositis of the bronchial muscles.

The case herewith presented conforms to both clinical and pathological standards and merits inclusion with previously reported cases. When Dr. Koucky's paper is published, there will be a further augmentation of completely studied cases from the University collection and further clarification of standards.

Case Report

An unmarried woman of fifty-six, with a history of asthma on her father's side, had hay fever in her youth, asthma for over twenty years and frequent attacks of tonsillitis all her life. Her doctor had advised her against serums. Her asthma had become worse following a cold six months before and especially since a recent cold, and proprietary medicines (asthmalene—a powder for smoking) had come to be unavailing. She was unable to sleep and could breathe only when propped up on pillows.

Examination was as follows: Height, 5 feet 4 inches; weight 93 pounds. Skin of body dry. Dermatitis about nostrils. Upper dental plates. Emphysematous chest. Blood pressure, 130 systolic and 80 diastolic. Chest plates showed normal diaphragms and lung fields, a narrow heart and somewhat lengthened aorta. The costal cartilages were calcified. Cloudiness of both antra appeared in sinus plates. The nasal mucosa was markedly infected and polypi were present on both sides. The tonsils were hypertrophied, with reddened

*Read before the meeting of the Minnesota Society of Internal Medicine, St. Paul, Minnesota, November 11, 1935.

pillars and debris in the crypts. Urinalysis was normal. The blood count showed hemoglobin, 66 per cent; red blood cells, 4,510,000; white blood cells, 12,150, with 33 per cent eosinophiles. The sputum showed many eosinophiles. Skin tests (scratch method) were \pm to twenty-six test materials, including animal material and pollens.

Nasal polyps were removed and later tonsils, and the patient was placed on sedative medication and given a course of autogenous vaccine made from her own sputum. She returned to her home, much improved in her breathing, able to lie down at night, with only one or two mild attacks to disturb her.

Five months later, on October 13, 1933, she reported that her attacks had returned to their former severity as soon as she had reached her home, and three severe attacks had lasted one to seven days each, during which death was considered impending. Her weight was 88 pounds. From this time until her death, on December 11, 1933, she was given adrenalin daily with gradually increasing frequency, a period of ketogenic diet and a course of hay fever antigen. The last two days adrenalin failed to give even temporary relief, as did glucose intravenously, according to the method reported by Dr. Lepak before this society in 1933. Frequently injected morphine gave her periods of relative rest. There was no temperature elevation, no edema of the lungs or extremities. During the last few hours the respiration became more shallow and slow with intervals of apnea of 45 to 60 seconds, and the heart rate varied from 88 to 100.

Autopsy was performed by Dr. George K. Higgins with the following findings: "Pleural cavities and pericardial sac are normal. The heart weighs 225 grams with no evidence of hypertrophy, dilatation, fibrosis or valvular abnormality. The myocardium is slightly darker than is usual and of firm consistency. The root of the aorta shows slight atherosclerosis and the coronary arteries are slightly thickened but not narrowed or occluded. Each lung weighs 300 grams with normal appearance of vessels and bronchi. There is a moderate emphysema with pale pink parenchyma free from pus, fluid or blood. The bronchioles are prominent and filled with thick, tenacious mucous plugs."

Microscopic appearance was described as follows: "The alveolar walls in some areas are stretched and thinned while in other locations they appear normal. The small bronchi are occluded by plugs composed of mucus but containing many cells, chiefly eosinophiles and lymphocytes but also occasional neutrophils. No definite thickening of the muscular layers of the smaller bronchi is evident but they show an extensive infiltration by lymphocytes and eosinophiles."

What is likely to be the final outcome in a case of severe clinical asthma? In an attempt to formulate an answer, I have gone over the autopsy records of the fifteen cases with bronchial asthma considered by clinical standards to

be the primary or contributory cause of death in the University of Minnesota collection of 1933 and 1934. These will all be included in Doctor Koucky's detailed and critical studies and most of them eliminated because of other anatomical conditions with asthma only a symptom. The diagnosis of bronchial asthma has been made, however, in all of them by reliable clinicians, and their errors as shown by subsequent autopsy studies may serve to clarify the diagnostic difference between bronchial (primary) and symptomatic asthma. Four patients, dying of bronchial asthma, according to pathological criteria, are found in this two-year group of fifteen autopsies, including the one reported above. There were two males and two females, forty-five, forty-seven, fifty and fifty-four years of age. The duration of asthmatic symptoms was sixteen years in two cases, one year in one and over twenty in the fourth. One death followed a few minutes after a bronchoscopic examination with the injection of lipiodol; one died in the car on the way to the hospital. There was no clinical evidence of circulatory disease and three hearts were found to be normal, while one weighed 300 grams with slight hypertrophy and relative dilatation of the right ventricle.

What of the eleven cases with clinical bronchial asthma but pathologic complications? They are of special importance to the internist for he must attempt to determine whether organic disease causes the symptom known as asthma or whether, in the course of his observation, organic disease supervenes in allergic asthma. Of these eleven, ten were males and their ages ranged from thirty-two to eighty years. The duration of asthmatic symptoms varied from three weeks in a man of eighty, to fifty-three years in a man of seventy-eight. Pulmonary infection was considered the cause of death in seven, bronchopneumonia in three, pneumococcal pneumonia in one, bronchiectasis in one, tuberculosis in one, and "purulent bronchitis" in one. A fractured pelvis and peritonitis from a perforated gallbladder accounted for two deaths; one died of emphysema; and one had a polycythemia and died of chronic congestive heart failure. Marked fibrous adhesions were present in six cases and emphysema in four.

What of the heart in bronchial asthma? Three

DEATH FROM ASTHMA—HANSEN

TABLE I. REVIEW OF FIFTEEN CASES OF BRONCHIAL ASTHMA
(UNIVERSITY OF MINNESOTA RECORDS, 1933-1934)

		Time	Heart Symptoms	Cause of Death	Emphysema	Pleural Adhesions	Heart Weight	Ventricles	Congestive Failure	
1	F-47	16 yrs.	—	Bronch. asth.	+	—	300 gm.	R slight	—	Typical asthma
2	F-54	20 yrs.	—	Bronch. asth.	+	—	225 gm.	—	—	Stat. lymph.
3	M-50	1 yr.	—	Bronch. asth.	+	—	275 gm.	—	—	1 day in hosp.
4	M-45	16 yrs.	—	Bronch. asth.	+	—	Normal	—	—	Sudden death
5	M-32	3+ yrs.	+	Bronch. pneum.	+	—	555 gm.	R & L	+	
6	F-36	2 yrs.	—	Tuberculosis	—	—	?	—	—	
7	M-35	3 yrs.	+	Pneumococcus pneumonia	—	—	625 gm.	R	+	
8	M-80	3 wks.	+	Purulent bronchitis	—	+	390 gm.	—	—	
9	M-68	Many years	+	Bronch. pneum.	+	+	618 gm.	R & L	+	
10	M-53	All his life	+	Bronchiectasis	+	+	375 gm.	R	—	
11	M-55	30 yrs.	+	Fract. pelvis	—	+	800 gm.	R & L	+	
12	M-78	53 yrs.	—	Bronch. pneum.	—	+	280 gm.	—	—	Ca. of stomach
13	M-58	Most of life	—	Perforated gallbladder	—	+	317 gm.	R	+	
14	M-50	7 yrs.	—	Emphysema	+	—	345 gm.	—	—	18 yrs. in steel grinding
15	M-43	5 yrs.	+	Right heart failure	—	—	496 gm.	R & L	+	Polycythemia
			7		4	6		7	6	

normal and one with slight right heart hypertrophy and dilatation were found in the four bronchial asthma deaths. Alexander, Luten and Kountz¹ found the heart singularly free from injury in fifty patients with asthma of five or more years' duration (nine of them with autopsy corroboration) and suggested that the increased intrathoracic pressure which occurs during the asthmatic paroxysm may impede the return of the venous blood and thereby actually diminish the work of the heart. Morris Kahn⁴ found electrocardiographic evidence of right ventricular preponderance in 20 per cent of fifty cases of bronchial asthma. Doctor Koucky believes that asthma by itself has no deleterious effect on the heart and that the hearts tend to be small. Fibrosis of the parenchyma of the lung due to ob-

struction of the bronchi in asthma may lead to secondary right-sided cardiac hypertrophy, he believes. Kountz and Alexander⁶ report three cases of clear-cut asthma, one of which showed a dilated and hypertrophied heart weighing 400 grams and with increased fibrous tissue. There was marked emphysema but no adhesions. The heart in Bubert and Warner's case² weighed 400 grams with hypertrophy of the right ventricle and slight increase of size of the individual fibres and of the interstitial fibrous tissue.

In comparison with the relative freedom from heart damage in primary asthma the eleven cases of symptomatic asthma include seven cases with cardiac hypertrophy, dilatation or both, and none with coronary narrowing or valvular disease. Seven of them showed ante-mortem evidence of

cardiac abnormality but not quite in correlation with the autopsy findings. The eighty-year-old patient (Case 8) had auricular fibrillation with no evidence of congestive failure clinically nor at autopsy and died of a purulent bronchitis. Blood pressure readings were recorded in seven of the eleven cases and all were normal or below. Hypertrophy and dilatation of the right heart, weight 625 grams, with acute passive congestion of lungs, spleen, liver and kidneys occurred in the patient dying of pneumococcal pneumonia (Case 7). Hypertrophy of the right heart with dilatation of all chambers, weight 618 grams, associated with chronic passive congestion of the liver and spleen but without edema, was found in a death from bronchopneumonia (Case 9). A slight hypertrophy of the right ventricle with a heart weight of 375 grams occurred in a patient with edema of the legs but no evidence of passive congestion of the organs (Case 10). The patient who died of a fractured pelvis and lung infarction (Case 11) had suffered with an enlarged liver for many years and edema of the feet for two years. His heart weighed 800 grams and showed hypertrophy of both ventricles, most marked of the right, and congestion of lungs, liver, spleen and fluid in pleural and peritoneal cavities. The one who died of peritonitis from a perforated gallbladder (Case 13) had a heart weighing 317 grams, with slight dilatation of right auricle and ventricle, congestion of lungs, liver and spleen. The patient with the polycythemia (Case 15) had edema of the legs, electrocardiographic evidence of right ventricular preponderance and at autopsy hypertrophy of both ventricles with dilatation of the right, and congestion of lungs, liver, spleen and kidneys. Another with hypertrophy of both ventricles, weighing 555 grams, showed edema of the ankles and died of bronchopneumonia. Six cases showed post-mortem evidence of congestive failure at autopsy, and seven right ventricular abnormality associated with left ventricular hypertrophy four times.

Summary

1. A case of fatal bronchial asthma, conforming to clinical and pathologic standards, is presented.
2. Four autopsied cases, including the above, abstracted from the records of the Depart-

ment of Pathology of the University of Minnesota (1933-1934), with a clinical diagnosis of bronchial asthma show no pulmonary disease except those typical for allergic asthma. In three the heart was normal and in one there was a slight hypertrophy and dilatation of the right heart, but no evidence of failure.

Eleven autopsy records of patients with clinical bronchial asthma listed as primary or contributory cause of death (1933-1934) are reviewed. None of these showed pathologic evidences of asthma. Seven patients died of pulmonary infections, acute or chronic, including tuberculosis in one. Two died of non-pulmonary accidents (fractured pelvis and perforation of gall-bladder); one of right heart failure with no evidence of primary pulmonary disease; and one of emphysema. Extensive fibrous adhesions occurred in six; emphysema in four; hypertrophied or dilated right heart in seven, associated with left heart hypertrophy in four; clinical evidence of congestive heart failure in seven; and pathologic evidence of congestive failure in six.

Comments

It is of interest to note that heart failure due to valvular, coronary or hypertensive disease was in no case confused with bronchial asthma. The frequency of fibrous pleural adhesions (six cases) in this group of complicated cases and the absence of such in the bronchial asthma group suggest an entirely different mechanism of origin, that is an infection leading to fibrosis of the lung with a chronic overloading of the right heart, causing ultimately a right heart failure with passive congestion favoring the development of pneumonia as a terminal event. The two patients dying from non-pulmonary causes (fractured pelvis and perforated gallbladder) both had extensive pleural adhesions and congestive heart failure and were suitable candidates for terminal pneumonia. The possibility of true asthma leading to obstruction of the bronchi, collapse, fibrosis of the parenchyma and secondary right heart hypertrophy must be considered, and Doctor Koucky has four of these in his group. It is possible that Case 15, with polycythemia and no lung adhesions, was in a late stage of such a picture, and that Case 1 of the true asthmatics was in an early stage of this process.

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VISUAL FIELD CONTRACTIONS—GRANT

The probable cause of death in a case of severe asthma then depends on whether or not the underlying mechanism is allergic or inflammatory. Whether or not the asthma due to sensitization and related to anaphylactic shock in its mechanism, with typical changes in the bronchial musculature and secretions, can, through a superimposed bacterial infection, lose its typical characteristics and end in a chronic bronchitis or pleuritis with the end-results as outlined in our last group of cases, is a question not yet settled by the allergists. For purposes of clinical differentiation our cases of chronic asthma fall into a group with normal or unusually small hearts, with eosinophilia and without evidences of old or recent pulmonary infection or congestive failure. These seem to be the ones who die of asphyxia due to occlusion of the bronchial passages with mucus, free from bacterial infection. Patients in the other and larger group who suffer from severe asthma are likely to show evidences of chronic bronchitis

or pleurisy and of cardiac enlargement with ultimate failure, and die of some form of acute or chronic pulmonary infection. Studies of nasal mucosa for evidences of sensitization, of skin tests, or blood sedimentation and eosinophile counts carried out by the numerous workers in the problems of allergy, when correlated with careful autopsy studies, will serve to clarify the diagnosis of bronchial asthma so that early and accurate differentiation can be made by the clinician between primary and symptomatic asthma.

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VISUAL FIELD CONTRACTIONS AFTER HEAD INJURY*

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IN STUDYING the symptoms of head injuries, the distinction between the neurologic and psychiatric factors is extremely difficult. Through careful analysis much has been done to correlate certain symptoms often designated as psychogenic with the picture of true brain injury. As early as 1890, Guth⁴ gave visual field changes as an objective sign.

Even at the present time much controversy exists as to whether the contraction of the visual field is an hysterical or an organic symptom. McCullough¹⁰ reports in detail ten cases of contracted visual fields. Thirty other cases of hemianopsia were conceded by him to be due to cerebral injury. The causes of pathologic visual field changes after head injury, according to him, are: (1) traumatic cerebral edema; (2) retinal edema; (3) contusion or laceration of brain tissue; (4) intracranial hemorrhage; (5) sequelæ of injury, cysts, abscess, and arterio-

venous aneurysm. He believed, however, that some degree of visual field impairment is present in every case of head injury.

Another field defect demanding consideration is the ring scotoma. In a review by Langdon,⁶ retinitis pigmentosa, chorio-retinitis, optic nerve lesions, glaucoma, lightning flash, night blindness, migraine, and eclipse retinitis were ascribed as causes of this phenomenon. de Schweinitz² and others cite hysteria, while Nicolletti, Lodons, Leblond and Beauveix¹³ have reported this finding in head injury. Gelb and Goldstein³ report six cases of ring scotoma after head injury but think the condition is due to ocular fatigue rather than to hysteria. Definite cause as to its production in some cases at least was shown by Lillie and Adson.⁸ In their two cases, one of which was confirmed at operation, an annular and central scotoma was produced by the pressure of a callus from fracture through the optic canal. There was unilateral loss of vision in each case.

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Strauss and Savitsky¹⁴ think more attention should be paid to fatigue as a cause of annular scotoma, as fatigue and exhaustion are prominent symptoms of a post-concussion state. It is true that standardization of technic in mapping visual fields, plus the correlation of ocular and neurologic signs is necessary in order to properly evaluate the symptoms.

Concentric contractions, with which we are chiefly concerned, cause most of the controversy. As stated by two accurate observers, one in the United States and one in Germany, tubular fields are usually hysterical; however, inasmuch as contraction of the visual field with reversal of the color field has been observed in poisoning from coffee, nitrobenzene, optochin, quinine, alcohol, tobacco and lead, the conclusion cannot always be drawn that such findings prove hysteria. In one case of McCullough's,¹⁰ although details are meagre, constricted fields were found after head injury. In the hospital a diagnosis of toxic encephalitis was made and compensation denied. In another reported by Strauss and Savitsky¹⁴ a relative central scotoma in one eye, and an absolute in the other, plus marked contraction settled the pathologic nature of the lesion.

No definite pathologic change in the optic nerve has been observed to explain the cause of contraction of the visual field. Some of the causes proposed are: (1) hysteria; (2) increased diastolic pressure in the retinal veins; (3) edema of the optic nerve; (4) brain injury; (5) commotio retinae producing a physiologic block of the light impulse.

The evidence for the diagnosis of hysteria is that the visual fields correspond closely with those found in hysterical patients. Sometimes the vision is tubular, or so nearly so that it is difficult to differentiate. Central vision is involved when there is actual injury to the papillo-macula bundle. The findings in any case do not constitute a sharp line of demarcation between the psychogenic and neurologic.

Since Bailliant described his instrument, the ophthalmodynamometer, for determining the systolic and diastolic pressure in the retinal vessels, it has been applied frequently for the aid and study of associated intracranial diseases. Lewy⁷ studied the relation of the diastolic pressure in chronic adhesive arachnoiditis and made his find-

ings a part of the syndrome. Suggestions for the application of this principle in head injuries were carried out by Klar,⁸ who had recorded his findings in twenty patients with commotio cerebri. There were no abnormal objective neurological or ophthalmoscopic findings. Bailliant's ophthalmodynamometer showed a pathologic increase in the tension of the retinal arteries. He believed that this increase was due to an irritation of the vasomotor center in the medulla, and that the contraction of the visual field was due to a hypertonic disturbance with insufficient oxygen in the retina.

Cushing and Eagleton¹ have both found contraction of the visual field in increased intracranial pressure although marked contraction is not an early symptom of this condition. Further studies along this line seem necessary before one can draw very definite conclusions between cause and effect.

According to McMurray,¹¹ edema of the optic nerve is common following head trauma, the optic nerve being involved first, the auditory second, and other nerves by pressure only. One gathers the idea that edema of the optic nerve is present with retinal edema without any actual swelling of the nerve itself. The term edema of the optic nerve is unusual and somewhat vague. These authors have observed retinal edema in a fairly large percentage of traumatic cases, although this symptom is rarely mentioned by other writers.

Vertigo is a very common symptom after head trauma and may, of course, be due to disturbance in the vestibular apparatus or to cerebellar changes. Involvement of the cochlea is less common than of the vestibular apparatus, and a reduction of the hearing is often discovered with the audiometer rather than from subjective symptoms. Vertigo is likely to persist much longer than auditory symptoms, and tests of the vestibular apparatus show abnormal responses.

In thirty-six patients complaining of post-traumatic dizziness, examined by Lithicum and Rand,⁹ abnormal vestibular responses were present in all.

The cause of post-traumatic dizziness is probably both cerebellar and peripheral, as Winkelman and Eckel¹⁶ noted multiple cerebellar hemorrhages at autopsy. They believe these would

have given rise to areas of softening or atrophy plus pial adhesions which would undoubtedly have produced a long period of post-traumatic dizziness if recovery had occurred. Experimental work has further shown that intentional trauma to the head of dogs produced corresponding changes in the vestibular apparatus itself.

The pathologic changes noted in the brain and meninges after head injury are many. One of the most frequent is subarachnoid hemorrhage. Such hemorrhages sometimes give rise to early or late optic nerve changes. Laceration of the brain occurs most frequently on the inferior surface of the frontal and temporal lobes. Petechial hemorrhages in the meninges and throughout the brain tissue are encountered without fracture of the skull or even with no evidence of scalp injury. When accompanied by laceration of the brain tissue, repair may be extremely slow, which undoubtedly explains the prolonged headaches after head injury in at least some of the cases.

Foster Moore¹² observed practically no absorption of a retinal hemorrhage during a period of two years, while Trotter¹⁵ observed incomplete resolution of a brain contusion during operation four years after injury.

Inasmuch as most observers have noticed the greatest injury following head trauma in the region of the frontal lobe it seems reasonable to assume that the optic nerves would not entirely escape. It is probably not possible in many instances to have a definite line of demarcation between a purely functional and an organic field change after such injury. There may be some subtle connection between the two and in some cases they seem closely associated. It seems distinctly unfair to classify individuals as psychic because of marked contraction of the visual fields or even with tubular fields when there is other evidence of organic injury to the intracranial contents.

The question has recently been raised concerning the hysterical nature of marked visual field contraction after head injury. I have been able to find but one explanation for the production of such changes and that is an increased diastolic pressure in the retinal vessels. This does not, however, seem to satisfactorily explain all phases of the situation. The hypothesis is advanced

that the visual field contraction is due to a physiologic block of the retinal impulse due to commotio retinae. It is admitted that commotio retinae, like commotio cerebri, is a vague, unexplained condition. Naturally organic fundus changes are excluded. The field changes are the moderate and marked contractions and possibly the annular scotoma. The evidence to support this hypothesis is, first, that the peripheral retina contains a greater number of synapses than the macula area and consequently a physiologic block would be more readily produced. Central vision being normal, small islands of scotoma are sometimes found in the periphery on the Duane Tangent screen and can be found in no other way. Secondly, moving objects in the peripheral field may actually be seen without the individual being able to discern color or form. This is not so readily observed in hysteria. Lastly, the visual field gradually returns to normal and this occurs before the cessation of other symptoms and without suggestion. In one instance the visual field was improving when the post-traumatic syndrome of dizziness, headache and fatigability were most pronounced. In some cases there are no ocular symptoms whatever and contraction of the visual field is found only by perimetric examination.

In one of McCullough's¹⁰ cases marked contraction of the visual field, symptoms of toxic encephalitis was present, as in the following case:

Case 1.—W. D., aged seven, was swinging on a trapeze on the veranda when he was thrown off the porch and struck the back of his head on some ice. The accident occurred in the latter part of March, 1935. He was picked up unconscious and remained so for several hours. On regaining consciousness he was in a highly excited state which lasted for many days, at times talking incessantly and unintelligently. After a period of complete rest in bed he was finally permitted to get up since there was no evidence of skull fracture and no definite neurologic findings. In the early part of May, however, he began to complain of pronounced fatigue and diplopia. After playing out-of-doors for a short time or remaining in school for a few hours, he was completely exhausted and had to remain in bed for the rest of the day. The diplopia of which he complained was noted only at close range and it was especially when his mother was close to him that he stated that he saw two faces. He was taken out of school and it was at this time that I first examined him. His vision was right 20/30, left 20/30; not improved with lenses. The external structure of the eyes was normal; the muscle balance showed no deviation for distance but diplopia inside of 12 or 14 inches. The

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convergence was poor. The retinoscopy under atropin showed a very small astigmatic correction at an oblique axis with only slight improvement of vision. The visual

showed an irregular contraction with some interlacing of the color fields. The neurological examination revealed no evidence of organic brain injury and x-rays

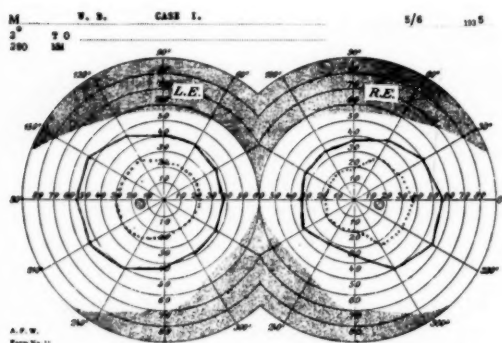


Fig. 1. Case 1. Moderate concentric contraction with symptoms of toxic encephalitis.

fields showed concentric contraction from about 15° to 20° in all meridians.

Comment: There has been considerable improvement in this child's condition following prolonged rest although recovery is not yet complete. Poor convergence plus diplopia at close range without paralysis of the recti muscles suggests a toxic or infectious type of encephalitis; yet this was undoubtedly due to trauma. These symptoms were present without definite neurologic signs and were undoubtedly due to organic brain injury.

Case 2.—F. M., aged forty-two, a carpenter by trade, was injured in an automobile accident the latter part of December, 1933. He was unconscious for a short time, and following this accident he remained in bed for approximately a month. The injuries which he received at the time of the accident were laceration of the scalp in the back part of the head, bruising of both knees and the right ankle. At the time of his examination May 2, 1934, his chief complaint was constant headache and some soreness in both knees and lower part of the back. Vertigo was present on bending forward; there was no nausea or vomiting. He also had marked fatigue and inability to walk more than a few blocks and inability to read except when he first got up in the morning. He also thought that his vision was never entirely clear. He was nervous and easily irritated and had lost approximately seventeen pounds in weight. His vision was right 20/50, left 20/40, which was corrected with a mixed astigmatic correction. He required a plus 75 sphere added to enable him to read the smallest type. His muscle balance was normal. There was a mild conjunctivitis; the fundi were normal. Examination of the visual fields

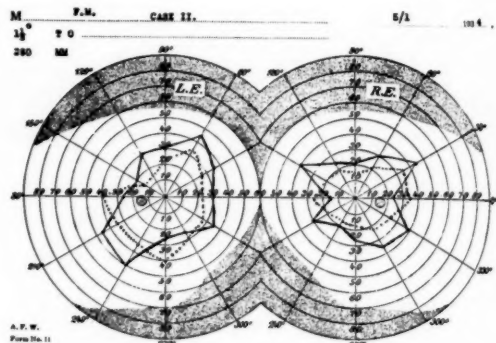


Fig. 2. Case 2. Interlacing color fields with contraction.

of the skull were negative for skull fracture. There were no tests of the vestibular or auditory apparatus.

Comment: In this instance we have a type of visual field commonly seen in hysteria and with it the post-traumatic syndrome of fatigue and vertigo without neurologic evidence of brain injury. The vestibular and auditory tests might have substantiated the findings of a definite brain injury.

Case 3.—L. J., aged fifty-one, was riding in a truck which was struck by a train the latter part of October, 1930. He was thrown up and through the roof and landed on his head about fifty feet away, following which he was unconscious for three or four days. His injuries consisted of a broken nose, many contusions of the body, and bleeding from the nose, mouth and ears. He remained in the hospital for approximately three weeks, following which he went home and remained in bed for about six months. At the time of his examination in August, 1934, he was remaining in bed for several hours each day. His complaints were pain in the left frontal and temporal region, continual ringing in the left ear with reduced hearing, pain in the back of the head extending to the left shoulder, reduction of vision with inability to read, and diplopia when lying in bed on the left side. He also complained of weakness with a tendency to fall on his knees. His weight was approximately 240 pounds as compared to his usual weight of 268 pounds. Examination was: vision right 20/20, left 20/25, which was not improved by the correction of a low refractive error. His near vision was right .62 J and left 1. J with plus 2 added. The muscle balance was normal. The visual field showed a concentric contraction to approximately 10° around the central point of fixation with the color fields corresponding. The visual field of the left eye was definitely not

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tubular, the retinal vessels showing some increase in tortuosity and signs of beginning sclerosis. The optic nerves were dirty gray in color with slightly blurred

improvement in the headaches after correction of the refractive error, but these recurred at irregular intervals.

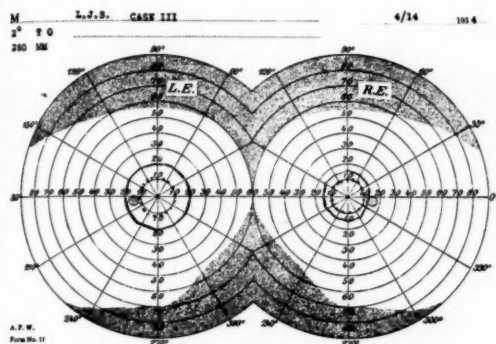


Fig. 3. Case 3. Concentric contraction without evidence of tubularity.

margins and were structurally full without loss of substance. The neurologic examination showed no evidence of brain injury. Vestibular and auditory tests were lacking.

Comment: In this instance we have evidence of a change in the optic nerve to account for the contraction of the visual field, and it lacks the characteristic hysterical tubularity. Vestibular and auditory tests would undoubtedly have corroborated the organic nature of the lesion in the optic nerve although it is possible that a swelling of the optic nerve may previously have been present and could account for the change in the nerve. Central vision was comparatively good.

Case 4.—B. F. L., male, aged thirty-two, was injured in an automobile accident the latter part of October, 1933, following which he was unconscious from seven to ten minutes. He was able to attend to a few business matters and then go home to remain until the latter part of January. He did not remain in bed. His chief complaints when seen in March, 1934, were constant headaches, blurred vision, vertigo, and constant ringing in the left ear. There had been some bleeding from the left ear at the time of the accident.

Examination: Vision right 20/25, left 20/25, improved to normal with the correction of a small amount of farsightedness and astigmatism. The external structures, muscle balance and fundi were normal. There was no evidence of congestion of the retinal veins. The visual fields were contracted to the 10° circle. The neurological examination was negative.

Röntgen plates showed no evidence of skull fracture. An ear examination by Dr. Connor revealed the ear drums to be normal and no abnormalities of hearing with tuning forks and spoken voice. There was some

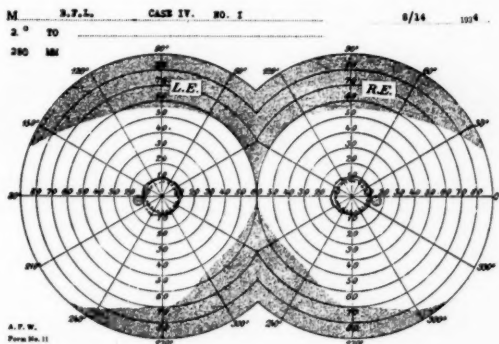


Fig. 4. Case 4. Marked concentric contraction.

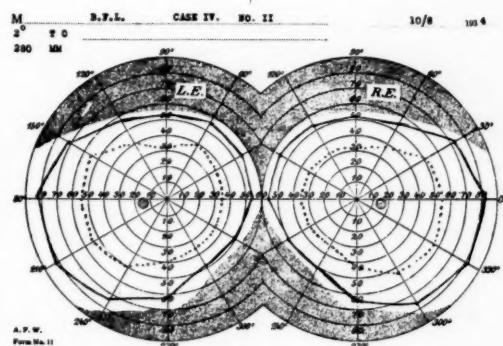


Fig. 5. Case 4. Complete field recovery with post concussion syndrome still present.

By September, 1934, the fields had returned to normal, as shown in the chart. The headaches and tinnitus were still prominent symptoms. In September, 1935, the headaches were still interfering with work and the tinnitus was present, although not annoying.

An audiogram at this time showed a slight decrease in the higher tones of both ears. There had been no settlement of the liability.

Comment: In this instance there were contracted visual fields and post-traumatic vestibular symptoms as an aftermath of trauma. Skull fracture was probably present but without x-ray evidence to corroborate it. Headaches, unknown before the accident, became a prominent symptom. The visual fields were normal long before the cessation of other symptoms. Recovery is not yet complete.

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Case 5.—Mrs. F. S., aged forty-three, was injured in an automobile accident on May 14, 1935, when her car was struck from the rear, throwing it into the ditch and causing it to turn over. She struck her forehead and

tion of the visual fields may be due to many causes. Some are purely neurologic, others appear psychic, and in still others both factors

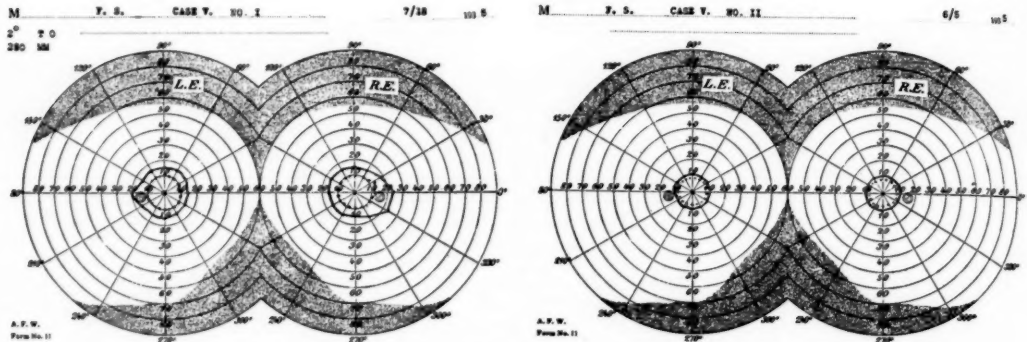


Fig. 6. Case 5. Contraction with improvement taking place before cessation of other symptoms.

nose against the windshield, which caused much swelling of the face and a nosebleed which continued for twelve hours. There was no evidence of a nasal fracture. There was considerable soreness of the chest which had almost completely disappeared when examined on June 5. At that time, the chief complaints were: vertigo and headaches. Vertigo began approximately five days after the accident and was most pronounced in changing posture, especially when bending forward. The vision was right 20/25, left 20/25. The refractive error was a low farsightedness without astigmatism. The fundi were normal without any signs of congestion of the veins or stippling of the retinal tissue. Visual fields showed a concentric contraction to 10°, color fields corresponding. For two months following the accident there was considerable increase in the amount of vertigo which was present on moving the head or even on changing the position of the eyes. Headache became more frequent and in spite of this, July 18, six weeks after the first examination, there was considerable increase in the visual field. Improvement in the visual field has been rapid and is now normal. The vestibular symptoms, although somewhat better, have not as yet entirely disappeared. There has been no settlement.

Comment: The last two cases represent instances of visual field contraction, bordering on psychogenic types, in the post-concussion state. Both showed visual field improvement during an increase of other symptoms. There were no signs of congestion of the retinal vessels. These are explained on the basis of commotio retinae with physiologic block of impulses.

Summary.—Following head injury, contrac-

seem closely related. Contracted visual fields simulating hysterical types in post-concussion syndromes, return to normal before cessation of other symptoms, and before settlement of the of the liability. They are explained as due to retinal congestion after vasomotor disturbance or to commotio retinae causing physiologic block of the light impulse. Visual field studies and hearing tests with the audiometer are valuable adjuncts in the study of head trauma and the post-concussion syndrome.

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INTUSSUSCEPTION*

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THE purpose of this paper is to analyze the status of intussusception in St. Luke's and St. Mary's Hospitals as revealed in the hospital records from September, 1925, to September, 1935, and to evaluate this experience in comparison with that recorded in the literature.

By intussusception we mean the invagination of one segment of bowel into the segment immediately adjacent to it. The rule is that the proximal or cephalad segment becomes invaginated into the distal or caudad segment. The only exception is in the rare case in which the disease appears as a complication of gastrojejunostomy where the distal arm of the jejunal loop invaginates into the stomach through the stoma.

The records show that, in the period mentioned, there were 51,698 patients admitted to St. Luke's Hospital and 61,653 patients admitted to St. Mary's, making a total of 113,351. These figures include admissions for any cause as well as individuals who were admitted as patients more than once. No attempt has been made to compute the error which might thus be caused in the estimate of the relative incidence of the disease under consideration. Among the 113,351 patients thus recorded, the diagnosis of intussusception was made in thirty-one. Examination of the records indicates that nine of the thirty-one diagnoses were probably in error, leaving a total of twenty-two proven cases or approximately one case of intussusception in each 5,000 admissions. The incidence of the condition, after deducting the unproven cases, was essentially the same in the two hospitals.

Of the twenty-two proven cases, thirteen, or 59 per cent, of the patients were less than twelve months of age. The next older patient was between twenty-four and thirty-six months of age, while the remaining eight cases were distributed irregularly between the ages of four to twelve years and one lone adult thirty-four years of age. It appears that there is a natural division of these patients into three age groups. In Group I

are all patients less than twenty-four months of age (the period of infancy), leaving all patients older than this, with one exception, in Group II (the period of childhood). In Group III is one case, an adult, probably representing the rare, sporadic occurrence of this disease in the period of youth and adult life. Intussusception is, therefore, emphatically but not exclusively a disease of childhood and preeminently a disease of infancy.

Correlating the factors of sex and age, it is seen that of the thirteen patients in the age of infancy group, six are males and seven are females, and of the nine patients in the age of childhood and adult groups, four are males and five are females. That is, 60 per cent of the males and 58 per cent of the females are in Group I, while 40 per cent of the males and 42 per cent of the females are in Group II. In most statistical studies, the incidence in infancy in males exceeds that in females about two to one.

Intussusception is classified, anatomically, according to the segment of bowel involved, as jejunal, ileal, ileocecal, appendix-cecal, cecocolic and colic. In the series of cases reported here, tabulated on the basis of the anatomic location of the lesion and the age and sex of the patient, of the nine males, in six the lesion was ileocecal, in two ileal and in one appendix-cecal. Of the thirteen females, in nine the lesion was ileocecal, in one appendix-cecal and in three ileal. Thirteen of the fifteen ileo-cecal cases were in the infancy group. The five ileal cases (two male and three female) were all in the childhood group. From these figures, the suggestion arises, first, that the ileocecal type is characteristic of infancy and, second, that the ileal type is characteristic of childhood. Of the two appendix-cecal cases, one was in the childhood and one in the adult group.

The signs and symptoms of intussusception are well known and in no case coming to operation, in the period of infancy group of this series, was the diagnosis missed, although in one patient, seen four days after the onset, the signs of obstruction tended to obscure the picture. In

*Review of cases in St. Luke's and St. Mary's Hospitals, Duluth, Minnesota, from September, 1925, to September, 1935. Read before the Duluth Surgical Society, February, 1936.

the childhood and youth-adult groups, the situation was reversed and confusion was the rule. Five of the nine cases in these groups were diagnosed acute appendicitis, one intussusception or internal hernia, two intestinal obstruction and one intussusception. The reason for this difficulty seems to lie in the fact that in the childhood group we are dealing with a different anatomical type of intussusception and that the clinical picture simulates appendicitis.

The accepted signs and symptoms of intussusception are: intermittent abdominal pain (usually appearing during or shortly after feeding), vomiting, blood in the rectum and a palpable abdominal mass. In infants, the pain is evidenced by the crying and writhing of the patients. The blood may appear in the stools or, in the absence of bowel movement, on the examining finger or the tip of the enema tube. The abdominal mass is not always easily demonstrable. According to Shelley,⁸ if an intussusception is suspected but no mass felt, either because of the abdominal distention or because of the patient's crying, the following procedure will often result in a positive diagnosis. The examiner's right index finger is placed in the child's rectum and his left hand on the abdomen. The assistant then holds the child in a sitting posture, with its face towards the examiner. The tumor will usually drop down between the examiner's hands.

In the infancy group of our cases, definite evidence of pain was recorded in all thirteen cases (100 per cent); vomiting was noted in all cases (100 per cent); blood in the rectum was found in all thirteen (100 per cent); a mass was felt in eleven (85 per cent). The two cases in which no mass was felt were patients whose symptoms had been present twenty-four hours or more and who died two to three hours after operation. These patients presented signs which would render palpation of a mass difficult—distention with general tenderness in one, distention alone in one. Pain and vomiting are the symptoms which first attract attention. A sausage-shaped mass in the abdomen and blood in the rectum are sometimes spoken of as late signs. This statement is not supported by our experience as these two signs were present in all cases in the infancy group seen in the first twenty-four hours. It is probable that the early detection of these

signs is a matter of proper search. The demonstration of the four cardinal symptoms and signs, just mentioned, completes the diagnosis and no further delay is permissible. Active treatment must begin at once for reasons which will appear in the following pages.

When the diagnosis is not certain, or if it is made and the position of the lesion is not located, roentgen examination is advisable. When the condition of the patient calls for as little loss of time as possible, a roentgenogram of the abdomen, made without any preparation, will often show the distended loops above the lesion and indicate the position of the intussusception by the differences in the shadows of the large and small intestine. Le Wald, quoted by Shelley,⁸ has demonstrated graphically the value of the barium enema in the diagnosis of intussusception when the patient's condition permits. If the obstruction is complete, the site will be shown. If it is incomplete, the enema will show the obstruction and may show where the barium filters around the invagination and remains after the enema has been expelled from the bowel.

In the childhood-adult groups of this series of cases, pain was present in nine (100 per cent); vomiting in eight (90 per cent); blood in stools in two (22 per cent) (one an ileal type of 120 hours duration and one an old ileocecal type); a mass recognized in three (33 per cent); localized abdominal tenderness and rigidity in six (66 per cent). The triad, abdominal pain, vomiting and right lower quadrant tenderness with rigidity, goes far to justify the diagnosis of appendicitis. However, in no case in this series is there indisputable evidence that acute appendicitis was the primary lesion, and in four cases, diagnosed appendicitis, the surgeon and pathologist found very slight evidence of disease in the appendix. One surgeon frankly stated that the appendix "shows no evidence of inflammation." The diagnosis of appendicitis was made in four of the five ileal cases and in one of the two cases of intussusception of the appendix into the cecum. In this case, the appendix had a large fecalith at its base and, as the intussusception was being reduced, a perforation was discovered in the appendix, but whether the condition of the appendix became acute before or following the invagination is open to argument. The fact that every appendix which becomes part of an

intussusception, regardless of the anatomical variety, appears red and swollen on disinvagination, bears directly on this point. The second case of appendix-cecal intussusception was, properly enough, diagnosed intestinal obstruction, as was one of the two cases of ileocecal intussusception appearing in this age group. One ileocecal case was diagnosed as such and the diagnosis in the fifth ileal case was "intussusception or internal hernia." It proved to be the former, headed by a gangrenous Meckel's diverticulum.

The end-results, when studied in connection with the age of the patient and the duration of the symptoms before treatment, emphasize the folly of procrastination and the imperative necessity of positive action in the presence of suspected intussusception. In the infancy group, there were five patients who were operated on from twenty-four to ninety-six hours (average 62 hours) after the onset of symptoms. Four of these patients died post-operatively within three hours of shock; one lived twenty-four hours; none survived. Eight were operated on between two and nineteen hours (average $7\frac{1}{2}$) after the onset of symptoms. Six had uneventful recoveries; one died in four days of gangrene, perforation and peritonitis; one died 6 weeks later of pyelitis and sepsis, the intussusception having been completely cured. A mortality rate of 25 per cent for the cases operated on early as compared with a rate of 100 per cent for those operated on twenty-four hours or more after the onset of symptoms carries its own lesson. It also suggests the advisability of revising our conception of the proper pre-operative, operative and post-operative management of these late cases—a subject which deserves consideration by itself and cannot be fully dealt with here. The total death rate in this group was 54 per cent. Our results do not suffer out of reason, however, in comparison with results elsewhere. Thomsen of Copenhagen reported a series of thirty-three cases all operated on, of which seventeen were recent with no deaths, and sixteen were old with thirteen deaths (eighty-one per cent).

In the childhood-adult groups, results were quite different. The duration of symptoms was twelve, twenty-four, twenty-seven and thirty-six hours in four cases, 72 hours in two, 96 hours in two and 120 hours in one case; an average duration of symptoms before operation of 62 hours.

There was one death in this group. This occurred in the patient whose operation was delayed five days, giving a death rate of 11 per cent, as compared with 100 per cent for cases of similar duration in the infancy group. All cases of the childhood-adult group, with one exception, were so-called old cases and the one death was in the case longest neglected.

Comparison of these two groups emphasizes the rapidity with which the infant's resistance to operation is broken down and the imperative necessity of prompt diagnosis in this group. Treatment must be prompt and active. Procrastination is fatal.

Spontaneous recovery rarely occurs without operation. It is probable that no intussusception which has reached a state of engorgement sufficient to cause the appearance of blood in the rectum ever disinvaginates spontaneously, but the intussusception may slough and the patient survive. Osler⁷ mentions a specimen of small intestine 17 inches in length which was passed by a boy who had symptoms of internal strangulation and completely recovered. Gron⁴ describes the case of a girl, four years old, who had acute invagination. Three weeks after the onset, a necrotic segment of colon 6 cms. in length was discharged from the rectum. Three and one-half years later, this patient required resection of the proximal colon because of stricture.

The cause of intussusception is, essentially, irregular peristalsis. It has been observed that, in the localized peristalsis caused by the Faradic current, it is the drawing up of the receiving layer by the contraction of the longitudinal coat and not the descent of one portion into the other which occurs primarily. Invagination may follow any sudden, limited and severe peristalsis. Occasionally tumors and other anatomic abnormalities of the intestine may favor intussusception. In about one-half of the cases described in the literature, no definite inciting cause appeared; in the remainder, diarrhea or habitual constipation existed. In our series of twenty-two cases, there was a Meckel's diverticulum in one, constipation and castoria in one, diarrhea, vomiting and castor oil in one, a slight cold in two, intestinal influenza and cathartics in one, mild bronchitis and frequent stools in one, which might be regarded as causes predisposing to irregular peristalsis. In fifteen cases, the disease

appeared, without warning, in previously well individuals.

A number of papers have appeared in which treatment of intussusception in infants by barium enemas under roentgenologic control has been advocated. Fruchard and Peijnaux,³ writing from Paris in 1931, mention a series of fourteen cases thus treated, with cure in nine. In three cases, the enema revealed the necessity of immediate operation, which was done with good results. In one case, there was doubt of the roentgen interpretation, so operation was done, successfully, and in another case the roentgen findings were misinterpreted, leading to delay and death. It is pointed out that the treatment by barium enemas should not be used unless there are surgical facilities at hand, since immediate operation is necessary if the preliminary treatment is unsuccessful. Of the ten cases treated without operation, there was one death directly traceable to the treatment—a mortality rate of ten per cent.

Sjöström⁹ of Stockholm reports (1934) that, for the three years preceding, all cases of intussusception admitted to the Lund Hospital were referred to the roentgen department. In addition to the establishment of the diagnosis, an attempt was made in almost all cases to disinvaginate under fluoroscopic control with the aid of a barium enema under pressure, employing massage and taxis. The successful cases were kept under observation; the failures were operated immediately. Disinvagination by enemas was successful in twenty-two out of thirty-eight cases. In the remaining sixteen, disinvagination was accomplished by operation. It is the ileocecal type that can be reduced by barium enemas in this fashion. In nineteen cases of this type, failure was encountered only once. The non-ileocecal type can be diagnosed roentgenologically and should be operated immediately. Cases in which the history of illness is less than twenty-four hours are most favorable. Taxis should not be attempted when the history of illness exceeds forty-eight hours. This is not an independent method; operating facilities will be needed in about one-third of the cases.

Thomsen,¹⁰ of Copenhagen, already quoted, reported thirty-three cases treated by operation without attempting bloodless disinvagination in the years 1917 to 1932. Of the seventeen patients operated on within twenty-four hours of

the onset of symptoms, all recovered; of the sixteen patients operated after a longer interval, three recovered and thirteen died.

In discussing this matter, Shelley, of New York, says: "The reduction of an intussusception may be nonsurgical, accomplished by the use of pressure enemas or air insufflation; but if this method is successful, it should be followed by abdominal exploration to make certain that reduction is complete and that there is no gangrene, perforation or tumor present."

From a study of the literature and the consideration of our Duluth experience, it appears that the soundest course to pursue in the treatment of intussusception is as follows: In the presence of the four cardinal symptoms, operate without delay, the earlier the better. If the diagnosis is in doubt, do not delay but insist on immediate roentgen examination and if intussusception is found, operate at once. We do not advocate non-operative reduction under the fluoroscope. A small, early intussusception is easily reduced and the operative procedure is completed; there is probably no point in attempting to suture the bowel somewhere to prevent recurrence. Many of the larger, later and more edematous intussusceptions may be reduced. Careful manipulation, rolling or milking back of the intussusciptens while constant but gentle backward pressure is maintained in the apex of the intussusception will usually bring about reduction. A flat, blunt dissector or the handle of the knife introduced inside of the neck may aid the reduction. If the intussusception is wrapped in moist gauze and even, steady pressure applied for a few minutes, with great care, the edema may be so relieved that reduction becomes possible. Both Farr² and Montgomery⁵ recommend the aid of air insufflation of the colon in the reduction of all intussusceptions at the time of operation. This simplifies the locating of the lesion, reduces the less severe ones without handling of the intestine other than for exploration and makes possible reduction in some of the advanced cases which otherwise might not be reducible. The procedure should at all times be under visible control. The air empties readily through the rectum.

Irreducible intussusceptions offer a far graver problem. This is the type of case found with increasing frequency as the cases pass from the

recent (duration of twenty-four hours or less) into the old (duration of twenty-four hours or more) categories. In cases in which we find that gangrene or perforation has not occurred, the Brown¹ operation may be attempted. In carrying out this procedure, one blade of the scissors is inserted under the edge of the neck of the intussusception and the neck is cut across parallel to the long axis of the bowel. If gangrene or perforation of the intussusceptum has occurred, do not attempt reduction of the intussusception but make a lateral anastomosis between the afferent and efferent loops of intestines, adding fixation of the invagination by placing a few interrupted sutures through the serosa and muscularis of the two portions of the intussusception at its point of entrance. This prevents leakage as the invaginated portion sloughs off (Montgomery⁶). At times, this procedure will seem inadvisable, either because the condition of the patient forbids even the manipulation necessary for the anastomosis, or because the condition of the bowel makes its retention within the abdomen dangerous. Under these circumstances, do the modified Mikulicz operation. This is performed by bringing the involved loop out, preferably through a separate incision, suturing the two "barrels" leading to the intussusception together and closing the wound. An extra-abdominal ileostomy is done in the following manner: A number 16 soft rubber catheter is inserted into the proximal end of the intestine just distal to its emergence from the incision and held in place by a purse-string suture. The catheter should extend several inches into the intestine. The loop is clamped off with one or two large clamps, and cut away at once with the cautery. The clamps are left on until there is necrosis of the end of the intestine and leakage occurs. This occurs usually on the fourth or fifth day. In the meantime, the wound is protected and the obstruction is relieved by the catheter. When healing occurs, a clamp is put on with a jaw in each end of the intestine and by pressure necrosis the lumina of the two ends are joined. This should be done as deeply as possible to insure a large connection. Later, closure is done by the intraperitoneal or extraperitoneal method, whichever is indicated.

Operative procedures other than those just described have been advised, but it is probable

that such procedures will be found superfluous if one has in mind the general principles which are embodied in the preceding discussion.

Primary resection with anastomosis is not suitable for infants. This procedure was followed by death from shock in three hours, or less in three of the five fatal old cases in our infant group. In another of the five cases, the ileum was anastomosed to the cecum and the gangrenous bowel placed externally, with death in three hours, and in the fifth case death followed what was described as an "easy reduction" in twenty-four hours from pneumonia. The hospital record in this case is quite confusing but apparently this patient was under observation in the hospital between three and four days with evidences of intestinal obstruction before operation was undertaken.

This acute susceptibility to operative trauma was not found in the childhood group as has already been pointed out.

In operating on infants for intussusception, there are a few points which deserve special mention. In the first place, all operations for intussusception should include a search for a possible mechanical cause. Tumors have repeatedly been described at the head of an intussusception and, when present, should be removed in the best way available. Sometimes, they are multiple and produce recurrence of symptoms. In a personal case (seen in consultation with Dr. C. H. Schroder) the appendix was kinked by adhesions and appeared to produce a dimple in the cecum, predisposing to recurrence, and was, therefore, removed with full knowledge of the general opinion that such an additional procedure is unwise in a condition already precarious. Open drop ether is the anesthetic of choice. Preoperative administration of saline and glucose, and, in some cases, blood transfusion is advisable; likewise, similar immediate postoperative treatment will be found well worth while. To protect the skin, if the Mikulicz technic has been followed, and there is leaking of intestinal contents, a paste of kaolin and glycerine, or frequent irrigations with tenth-normal hydrochloric acid in 10 per cent peptone will be sufficient.

The general conclusion which a study of our cases, in the light of experience elsewhere, appears to warrant is, that early diagnosis, fol-

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lowed by prompt, careful surgical management, offers the best hope in the treatment of this serious disease.

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CASE REPORTS

BRONCHIAL ASTHMA

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THE following case report is felt to be of interest because of the rarity of death due directly to bronchial asthma.

J. D., white male, fifty-seven years of age, a retired farmer, had his first attack of bronchial asthma in 1931. The attacks at first were mild, but increased in severity and frequency. Between attacks he had some cough with expectoration of frothy mucus, rarely mucopurulent material. During the past five years his weight decreased from 140 pounds to 105 pounds, and in 1934 he was forced to give up farming because of weakness. Roentgen examination of the lungs in January, 1934, revealed no evidence of disease; in May, 1934, and in April, 1935, the examinations were inconclusive, but on September 19, 1935, a definite bilateral pulmonary tuberculosis with cavitation in the right upper lobe was discovered. Examination on admission to Glen Lake Sanatorium, October 27, 1935, showed bilateral fibroid pulmonary tuberculosis involving the right upper lobe and the apex of the left lung, with the pleura over both apices thickened. The mucous membranes of the nose were atrophic. There was moderate atrophy of the prostate. Diagnosis was moderately advanced pulmonary tuberculosis and bronchial asthma. He had rather severe hayfever during the fall of 1935, which came to an end with the first frost. No history of hayfever before 1935 and no history of other allergic manifestations except bronchial asthma could be obtained.

It was felt that, while he undoubtedly had pulmonary tuberculosis, most of his disability was due to bronchial asthma. During the first five weeks in the Sanatorium, a daily dose of ephedrine sulphate, grains $\frac{3}{8}$, by mouth, gave him ample relief from symptoms. For the next eight weeks he required no medication. Then the asthmatic attacks recurred with increased severity once or twice a week, requiring ephedrine sulphate, grains $\frac{3}{8}$, by hypodermic injections. For a week before his death he was given ephedrine sulphate, grains $\frac{3}{8}$, once or twice daily, usually with complete relief.

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On March 27, 1936, he received $\frac{3}{8}$ grains of ephedrine sulphate hypodermically at 11:15 a. m. with the usual relief. This was repeated at 5:15 p. m. because of another attack. This time he obtained very little relief from the ephedrine but apparently had complete relief from 0.5 c.c. of adrenalin hydrochloride. He received the usual bed time care and his condition appeared as usual at 9:00 p. m. At 9:30 he requested a bedpan. According to his roommates, while attempting to use the bedpan, he had another asthmatic attack and fifteen minutes later suddenly collapsed and expired.

Roentgen examination of his lungs showed no change during his residence in the Sanatorium. He expectorated no muco-purulent sputum, and tubercle bacilli were not demonstrated in his sputum. The urine was normal. The blood examination on admission was as follows: Hemoglobin, 92 per cent (Sahli); red blood cells, 4,640,000; white blood cells, 6,000; polymorphonuclear leukocytes, 51.5; lymphocytes, 22; mononuclears, 4.5; eosinophiles, 21.5; basophiles, 0.5. On later counts the blood picture was normal and the eosinophiles had dropped to 1.5 per cent.

At autopsy the body was found to be markedly emaciated; the upper third of each pleural cavity was obliterated; the spleen contained the scar of an old infarct; and each kidney presented several pits due to athero-sclerosis, the right kidney also showing one small fibroma. Examination of the central nervous system revealed nothing of note.

The heart weighed 250 grams. No dilation or hypertrophy of any chamber was present. The valves and myocardium appeared normal. The coronaries showed nothing of note.

The lungs weighed 1,570 grams. The parenchyma was emphysematous, but no bullae were evident. On palpation, besides the emphysema, nodules in the apex of each lung could be discerned. Before injection of the trachea with formalin, a portion of the lower lobe of the right lung was sectioned and the small bronchi were found to be filled with thick, tenacious, mucous plugs. After fixation, detailed examination of each lung revealed the following: The apices were firm and contained fibrous and some caseous tuberculosis, more marked on the right side. There was no evidence of cavitation. The apical pleurae, as well as the interlobar pleura on the right side, were thickened. Tuberculosis was present only in the apices and in the tracheo-bronchial lymph nodes.

Almost every small bronchus contained a mucous plug which, in several instances, extended toward the trachea into bronchi, 0.6 cm. in diameter.

Microscopically the tissues revealed no additional diagnosis. The fibrotic and caseous areas of the lungs,

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and the thickened pleura showed active pulmonary tuberculosis.

The walls of the bronchioles were thicker than normal due principally to a hypertrophy of the smooth muscle. The mucous glands were filled with secre-

tion. The plugs were mucous in nature and contained occasional eosinophiles and mononucleated cells as well as some desquamated columnar epithelium. The mucosal portions of the bronchiolar walls were infiltrated with eosinophiles and mononucleated cells.

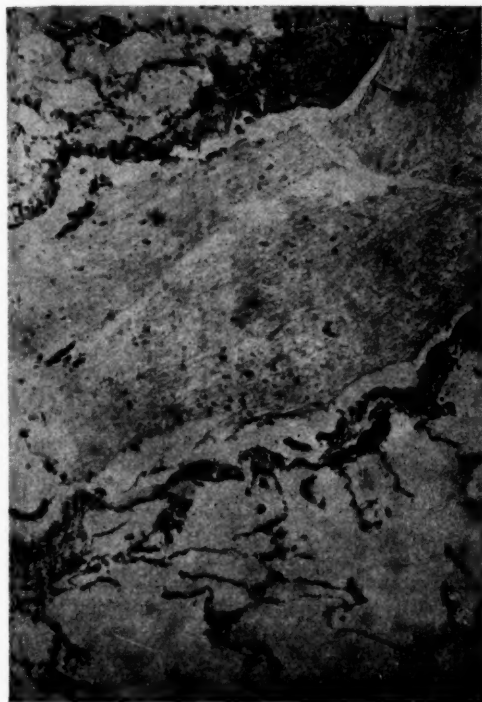


Fig. 1. Mucous plug in a small bronchus. Photomicrograph.

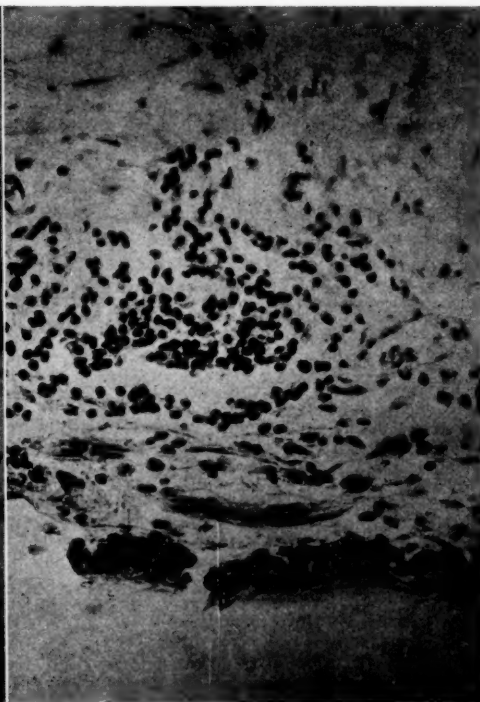


Fig. 2. Infiltration of bronchiolar wall by mononuclear cells and eosinophiles. Photomicrograph.

FATAL ASPHYXIA IN A CASE OF RETROPHARYNGEAL ABSCESS

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Saint Paul

UNDER ordinary circumstances the diagnosis and management of a retropharyngeal abscess is no serious problem, and the prognosis is usually favorable. However, the following case will illustrate the exception to the rule and stress the necessity of ever being on the alert for a disastrous complication in a morbidly not itself considered of a serious nature.

A female child, one and one-half years old, Mexican, was first seen at the Outpatient Department of the Ancker Hospital, on February 21, 1935. The mother of the patient stated that the child had had difficulty in swallowing food for the past eight days and that she had noticed a swelling on both sides of the neck and a discharging right ear. Examination revealed a right acute otitis media; inflamed, hypertrophic tonsils nearly touching each other; and a marked bilateral cervical adenitis. As the child's dysphagia was consid-

ered of a mechanical nature, due to the large tonsils, she was discharged and the mother was advised that a tonsillectomy would be necessary after the inflammation had subsided. Late in the evening of the following day, the patient was again brought to the hospital, the mother stating that the child's difficulty in swallowing had increased and that she also seemed to have some trouble in breathing. The possibility of a diphtheritic throat infection induced the attending physician in the receiving room to admit the child to the contagious section of the hospital, where cultures were taken and palliative treatment administered.

The following morning, February 23, I was asked to see the child. Examination revealed a poorly nourished female child, lying quietly in bed, but seemingly very apprehensive. The skin was pale. Respiration was shallow and slightly accelerated, but there was no stridor. A bilateral extensive adenopathy colli was noticeable involving the submaxillary and especially subauricular region, which was hard in consistency and tender on pressure. The oral inspection revealed hypertrophic, inflamed tonsils, and a markedly inflamed bulging tumor in the pharynx, the size of a large walnut. On palpation the tumor mass was soft and fluctuating. The temperature was 101°.

There was little doubt but that we were dealing with

CASE REPORT

a far advanced, retropharyngeal abscess, and the child was immediately taken to the operating room for incision of the abscess. Under my supervision, the resident of the department performed the operation. The

stricture, and secondly, that there were only comparatively slight symptoms of asphyxia during the course of the morbidity and at the time of the operation. An

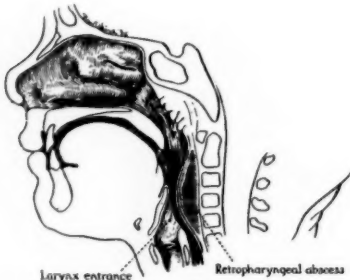


Fig. 1. Schematic drawing showing the retropharyngeal abscess partially occluding the larynx entrance.

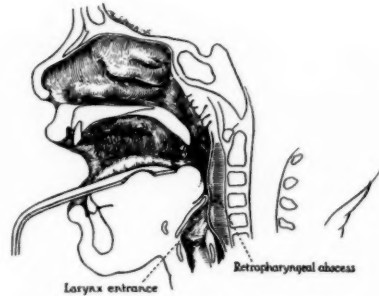


Fig. 2. Schematic drawing showing the retropharyngeal abscess and the depressed tongue causing complete laryngeal obstruction.

patient was put in an extreme dependent position (naturally no anesthetic was used), a Locktite mouth gag was inserted, and the tongue depressed with a metal tongue depressor. At that moment, before an incision could be made, and without showing any of the symptoms which usually accompany attacks of asphyxia, the child stopped breathing. The mouth gag was immediately removed, the tongue pulled forward, the head lowered still more, and artificial respiration induced, but without avail. Assuming a laryngeal obstruction was responsible for the asphyxia, a tracheotomy was done, which also was ineffective, as were all other resuscitating measures. Unfortunately, consent for an autopsy could not be obtained.

In analyzing this case, the sudden and nearly asymptomatic attack of asphyxia stands in the foreground. Was the main causative factor of it a mechanical laryngeal obstruction, or some other intercurrent morbidity? According to the history, the beginning of the abscess formation was at least ten days prior to the admission, it increased in size and gravitated downwards in the loose retropharyngeal space until it reached the mouth of the esophagus, which is formed anteriorly by the cricoid cartilage and posteriorly by the constrictor pharyngis inferioris, and here the sagging stopped. From then on expansion of the abscess was directed forward, in the region of the aditus laryngis, and as from day to day it became more voluminous, so the laryngeal and esophageal obstruction became more pronounced (Fig. 1).

From Figure 2 one can readily see how the depression of the tongue had aggravated the condition, creating a complete laryngeal obstruction out of a partial one. Depressing the tongue extends its base backward and downward, against the epiglottis, which procedure under normal conditions causes no significant interference because ample breathing space is left, but in our case this space was already reduced to a small slit, and manipulation with the tongue depressor completely obliterated it.

However, we further must explain the fact that release of the tongue failed to release the laryngeal ob-

struction. The laryngeal obstruction was not a sudden one, such as results from a foreign body, laryngeal edema, and so on, but a gradual one. The respiratory mechanism, namely the taking in of oxygen and expulsion of carbon dioxide, was not shut off suddenly, as it is in the previously mentioned cases, but day by day it was diminished, and as a result the whole organism and respiratory center adapted themselves to these altered metabolic conditions, and so we did not find labored breathing, rapid pulse and cyanosis. However, on the other hand, the threshold of oxidation was reduced to such a minimum that any further interference in the intake of oxygen, although for a few moments only, brought on suffocation, because no reserve was left to stimulate the respiratory center; naturally, all resuscitating methods failed for the same reason.

According to Henderson,¹ the supply of oxygen is the principal factor controlling the sensitivity of the respiratory center. A slight oxygen deficiency causes the appearance in the blood of some substance that increases the respiratory sensitivity, while on the contrary, extreme oxygen deficiency diminishes the sensitivity to such an extent that an abnormally strong stimulus is required to induce activity. Therefore, the all-important factor necessary to avoid such a disastrous result would have been an early diagnosis. Every day of delay enhanced all those factors responsible for the asphyxia, namely the laryngeal obstruction and the accompanying oxygen deficiency and alkalosis of the blood. A correct diagnosis and proper treatment forty-eight hours earlier would probably have saved the child's life, as at that time the oxygen reserve was not so completely depleted, and even a complete momentary laryngeal obstruction would not have resulted in fatal suffocation, as enough stimuli would have been left to excite the respiratory center, after relieving the obstruction.

However, there was no way of determining these

(Continued on Page 470)

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JULY

CLINICAL PATHOLOGIC SEMINAR*

Conducted by E. T. BELL, M.D.

Department of Pathology, University of Minnesota
Minneapolis

Aneurysm

Case 13.—A man, fifty-two years of age, was admitted to hospital March 5, 1936. In August, 1933, he had been admitted to the dispensary because of pain in the chest, dyspnea and wheezing in his throat. Blood Wassermann +++++. He gave a history of gonorrhea thirty years ago but, except that the foreskin was removed at that time, there was no history of primary or secondary syphilitic manifestation. Examination showed normal pupillary reflexes; pupils equal, although the right one was oblong. The heart was enlarged to the anterior axillary line in the sixth interspace; a to and fro murmur was audible in the second right interspace; a diastolic murmur at the apex. The pulse was waterhammer in type and there was capillary pulsation. Blood pressure about 140/30. Reflexes normal.

Blood: hemoglobin 74 per cent; red cells 4,290,000; leukocyte and differential count normal on two occasions. Urine: no albumin except on one occasion when a faint trace was recorded; none to occasional leukocytes. Spinal fluid: negative Wassermann; no rise in the colloidal curve. X-ray showed the heart to equal 53 per cent with left ventricular enlargement; marked widening at the base and upper mediastinum. Electrocardiogram showed left ventricular preponderance, a high take-off of the T wave in lead 2 and a flattened T wave in lead 3.

In spite of continuous antisyphilitic treatment the blood Wassermann remained +++++ till January 26, 1935, when it became negative. The patient was given three months rest, at the end of which time the Wassermann was again ++; treatment resumed but the Wassermann had become +++++ by August 31, 1935, and continued so despite treatment.

In the cardiac dispensary he complained of pain in the sternum, in the right side and also in the left chest and left arm. The pain, however, disappeared entirely and the cough and dyspnea persisted, although not so extremely marked. The condition remained stationary until on March 2, 1936, when he had increase of dyspnea.

On March 4 he felt much improved and walked a distance of about two miles without getting short of breath. On the following morning, March 5, he became very dyspneic and entered the hospital. Examination showed no pupillary reactions to light or accommodation. A few râles over the right lung base and coarse râles and wheezes at the left and right apices anteriorly. Blood pressure 126/50. The knee jerks were absent. Soon after admission he became more dyspneic. His breathing became labored and he developed cyanosis, then suddenly developed several convulsions and fell over dead at 3 p. m. on March 6.

At the postmortem the heart measured 15.5 cm. in

width. The large branches of the pulmonary artery showed no evidence of thrombi or emboli. There was a large bulging mass in the superior mediastinum which proved to be an enormous aneurysm. The heart appeared larger than normal; estimated weight 500 grams. The mitral, tricuspid and pulmonary valves were normal. The leaflets of the aortic valve were definitely shortened and separated at their commissures and showed cordlike edges. The coronary orifices did not appear narrowed; the arteries showed some calcification but no reduction in size of the lumens. There was definite left ventricular hypertrophy. The myocardium on section was paler than normal and showed small well defined areas of fibrosis. The entire aortic root, the arch of the aorta and the descending portions for a distance of several centimeters was definitely dilated and thin. The inner surface showed dark atheromatous streaking and many calcified plaques. This process ended abruptly in the descending aorta. The aneurysmal sac measured about 13 cm. in diameter; immediately opposite the trachea there was a defect in the wall of the aneurysm, 2 cm. in diameter; the edges were rounded and the defect was so sealed off that no free hemorrhage occurred into the mediastinum, trachea or esophagus. There was a bulging mass in the trachea, however, 3 cm. in diameter. The tracheal cartilaginous rings were eroded and the mucous membrane over this mass was reddened. The mass definitely obstructed the trachea. Other findings not significant.

Diagnosis: Syphilitic aneurysm of the aorta with syphilitic aortitis and valvulitis (aortic).

Comment.—The syphilitic hearts causing death comprise approximately 10 per cent of all cardiac failures. Death occurs in four ways: (1) aortic insufficiency, 46 per cent; (2) rupture of aortic aneurysm, 28 per cent; (3) narrowing of coronary orifices, 24 per cent; and (4) gumma of the myocardium, 2 per cent. Two clinical considerations worth noting are that syphilis of the aortic valve does not cause stenosis and myomalacia seldom occurs following narrowing of the coronary orifices. A pericardial rub which is common with coronary sclerosis is not detected.

Pulmonary Embolism

Case 14.—A white man, fifty-one years of age, was admitted December 5, 1935. He had been struck by an automobile shortly before admission and was found lying in the street. He was totally unconscious and no history was obtained. Examination showed an odor of alcohol on his breath. He did not respond at all. There was a stablike laceration behind and above the right ear with some edema of the surrounding structures. There was bulging of the right drum with evidence of blood behind the drum. There was marked

*Continued from June, 1936, issue.

laceration of the lower eyelid (right?). There was no blood in the nose. The abdomen was quite tense. The blood pressure was 90/60, the temperature 96°, respirations 20, pulse 72 and very weak. There was dislocation of the left shoulder.

The urine on December 7 was negative except for a heavy trace of albumin and an occasional granular cast. The blood Wassermann was negative. Blood December 10: hemoglobin 63 per cent, 3,600,000 red cells; 12,850 leukocytes; 70 per cent polymorphonuclears, 16 per cent lymphocytes, 8 per cent monocytes.

X-ray on December 12 showed the left knee to be negative. The upper end of the fibula showed a fracture line. The left hip was negative. There was extensive comminuted fracture of the upper outer portion of the left ilium showing considerable separation of the fragments. There were fractures of the ninth, tenth, eleventh and twelfth ribs on the left posteriorly and of the fifth and sixth on the left in the anterior axillary line. There was no evidence of fracture of the skull.

The dislocated shoulder was reduced in the receiving room. The patient was sent to the ward and given the usual treatment for shock. Three or four hours after admission, consciousness began to return. The blood pressure remained low for ten or twelve hours. The patient was incontinent. Consciousness had returned fairly well within the first twelve hours after admission. The voice was very weak for the first two or three days; this slowly came back. His mental state remained rather hazy for quite a while. Two days after admission, a note was made that the patient had a right facial paralysis but the remainder of the neurologic examination was negative. After the first three or four days he did quite well. The left leg was placed in a posterior molded splint and he had few complaints except pain in the chest on coughing. The facial paralysis persisted during his stay in the hospital. On the night of the 28th day in the hospital he had been feeling very well. However, he complained to the nurse that he was having some pain in his chest and considerable cough. The following morning at 3:50 he died rather suddenly without any further complaints (January 3, 1936).

The significant postmortem findings were the absence of edema of the extremities, a normal heart, an embolus filling the right main pulmonary artery, smaller emboli in the secondary branches of the left pulmonary, fractures of the skull, ribs, pelvis and left fibula. No site for the primary thrombosis was found. Diagnosis: Pulmonary embolism.

Comment.—Sudden death in individuals of this age might conceivably be attributed to coronary disease, cerebral hemorrhage and the condition, which is least likely to be thought of as a complication of fracture, namely, pulmonary embolism. The occurrence of pulmonary embolism after fractures is not well known and occurs most frequently following fractures of the lower extremities. Contrary to what might be expected it is usually with simple rather than with compound fractures that there is found embolism of the lung.

Anuria

Case 15.—A man, sixty-five years of age, one year ago had resection of the median lobe of the prostate. History otherwise negative. He entered the hospital May 12, 1936, because of urinary frequency. On the day of admission a stricture of the posterior urethra was incised and dilated and a small amount of prostatic tissue was removed transurethraly. 100 mg. of novocain was used as a spinal anesthetic. Blood pressure 110 systolic. At the close of the operation he went into immediate shock and the blood pressure went down to 60 systolic. The hemoglobin before operation was 60 per cent; there was no unusual bleeding during the operation but, because of the low hemoglobin, he was given 500 c.c. of blood and some gum acacia on the day of operation.

On the first day after the operation 300 c.c. of urine was passed; no more was passed until the fourth day when 200 c.c. of bloody urine was obtained by catheter; on this day he received 300 c.c. of 30 per cent glucose intravenously and a blood transfusion. Further transfusions were given on the sixth and seventh postoperative days; these caused the hemoglobin to rise but little. One postoperative hemoglobin was 62 per cent. He passed no urine after the fourth day except that during the last two days about 5 c.c. was recovered on two or three occasions by catheter.

Blood urea nitrogen 35 mg.; creatinin 2 mg. on the fourth day; on the seventh day blood urea nitrogen was 71 mg.; on the eighth day 123 mg. with creatinin 10.7 mg.; on the ninth day 98 mg.; on the tenth day 130 mg. with creatinin 5 mg. The day before death pulmonary edema appeared. He was clear mentally until the morning of the day of death.

At autopsy the prostate showed the evidences of recent transurethral resection; it was of normal size. The heart was essentially negative. The lungs showed moderate generalized edema. Each kidney weighed 170 grams; the surfaces were smooth. On section the kidney substance was opaque, pale and swollen; the usual markings were scarcely perceptible. The pelvis and ureters showed nothing of note. The bladder contained only a few drops of bloody urine.

The cecum and ascending colon showed numerous ulcers of the mucosa up to 2 cm. in diameter; the mucosa between the ulcers was hemorrhagic. The mucosa of the remaining portion of the colon and of the rectum was hemorrhagic in places. (Uremic colitis.)

Microscopic examination: The glomeruli of the kidney are essentially normal; there is moderate pyelonephritis; some of the tubules are dilated; many of the tubules are filled with blood pigment. Diagnosis: anuria of undetermined origin.

Comment.—This is one of the rare but definite cases in which there is renal insufficiency going on to death with no demonstrable anatomic cause. In this case the cause of the anuria lies between a transfusion reaction and operative shock from dilatation of the urethral stricture. In certain cases of anuria following transfusion reaction the tubules are blocked by blood pigment but in this case there is not enough blood pigment in the tubules to cause renal insufficiency. In

CLINICAL PATHOLOGIC SEMINAR

other cases of anuria, such as that accompanying diabetic coma, no change is evident in the microscopic sections of the kidney except dilatation of the tubules.

Stomach Carcinoma

Case 16.—A man, fifty-five years of age, was admitted to hospital June 9, 1926, with complaint of not feeling well since an attack of stomach "flu" in October, 1925. From that time he had had slight occasional epigastric pain, occasional belching and vomiting and some anorexia. There was no regular connection between taking food and the gastric distress. There had been loss of weight of twenty pounds since October, 1925.

Examination showed blood pressure 100/58; occasional extrasystoles. X-ray and fluoroscopy of the gastrointestinal tract showed a filling defect of the pyloric portion of the stomach and the duodenum; marked dilatation of the stomach; peristalsis continued to the pyloric portion and was almost absent beyond this; the stomach was markedly ptotic, hanging down to just above the symphysis pubis. There was marked retention of barium in the stomach; at six hours there was very little in the duodenum or the small intestine. X-ray diagnosis was malignancy of the pyloric portion of the stomach. Electrocardiogram showed tachycardia, auricular extrasystoles and right ventricular preponderance. Posterior isoperistaltic gastroenterostomy was done; there was found a large rounded tumor of the pyloric portion of the stomach adherent to the liver; no extension or metastasis noted. No attempt was made to remove the tumor. The appendix was removed.

Hemoglobin on June 9 was 50 per cent with 2,890,000 red cells; on June 24 hemoglobin was 35 per cent; red cells 2,310,000; white cells 9,100; on July 3, hemoglobin was 35 per cent; red cells 2,900,000. Gastric analysis just before the operation showed 84° total acidity with 45° free acid.

After the operation the patient got along well until the fall of 1935 when he received some digitalis for cardiac decompensation. About April 20, 1936, he began having nausea and vomiting with epigastric pain which became progressively worse. He had been working until

this time. He was admitted to the hospital about May 10 and after a few days transferred to another hospital. The last three days of life he was unable to retain anything taken by mouth.

At postmortem the peritoneal cavity contained about 1,000 c.c. of brownish cloudy fluid. The heart weighed 400 grams and showed moderate coronary sclerosis and marked old fibrosis. All the peritoneal surfaces, including the serosa of the bowel, were studded with innumerable small tumor nodules. The omentum was rolled up, thickened and covered with a layer of small nodules of tumor; in places it and the stomach were adherent to the anterior abdominal wall. The parietal peritoneum and the diaphragm were thickened by infiltration of tumor. The various organs on section showed no tumor metastases.

The esophagus showed nothing of note. The pyloric portion of the stomach was markedly thickened by diffuse infiltration of tumor. This infiltration extended into the root of the mesentery and the other structures posterior to the pylorus so that they were fused into a solid mass. There was a posterior gastroenterostomy with the proximal portion of the jejunum, in good condition. The duodenum had been closed off. The mucosa of the stomach was diffusely congested. The wall of the stomach was about 2 cm. thick at the pyloric region; it became gradually thinner toward the cardiac end so that at the cardia it was not appreciably thickened. The mucosa of the small bowel appeared normal.

Microscopic examination: Stomach in pyloric region—diffuse infiltration of carcinoma cells between muscle bundles and in the thickened submucosa and serosa; the picture is that of typical scirrhous carcinoma.

Title: Scirrhous carcinoma of the stomach surviving ten years after gastroenterostomy.

Comment.—In all probability there was a scirrhous carcinoma present in the pyloric region of the stomach at the time of the gastroenterostomy ten years ago. This is an unusually long period of survival and illustrates the fact that gastroenterostomy, even though it may be looked upon as only a palliative measure, is decidedly worth while in these cases of slowly growing carcinoma of the stomach.

VITAMIN D MILK

Because of the practicability of administering vitamin D to infants directly in milk, this fluid fortified with the vitamin, either by the addition of concentrates, by the feeding of irradiated yeast to the cow, or by the direct irradiation of the milk, has received special attention. Clinical experience with the different types of "vitamin D milk" in the prevention and cure of rickets in infants has indicated that, unit for unit, there appears to be no great difference between the antirachitic value of the three types. If a slight difference actually existed, it was thought to be in favor of the milk irradiated directly. A recent experimental investigation on chicks by Haman and Steenbock, however, seems to indicate that in this species a distinct difference exists between the antirachitic activities of "yeast milk" and of "irradiated milk." The results demonstrated that "irradiated milk" is approximately ten times more effective than the same number of rat units of "yeast milk" and, further, that the antirachitic

activity of the former compares favorably with that of cod liver oil and irradiated cholesterol. A distinct difference between the vitamin D content of the cream and that of the skim milk portion of "irradiated milk" and "yeast milk" was also described. The foregoing investigation gives no support to the possibility that the baby chick can be used with greater accuracy than the rat for ascertaining the antirachitic effectiveness of different vitamin D containing substances in infants. However, it is of some interest in this connection that, according to a recent clinical study by Davidson, Merritt and Chipman, the feeding of "yeast milk" to premature infants as the sole source of vitamin D proved to be inadequate for achieving complete protection against rickets. It would seem that the question of the relative merits of various antirachitic agents is far from solved and that there is an urgent need for further carefully conducted and controlled studies of the problem, particularly in full-term and premature infants.—(J. A. M. A., May 9, 1936, p. 1664.)

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE, Saint Paul

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Is Histidine Treatment for Ulcer Discredited?*

Three years ago, Weiss and Aron of Strasbourg introduced histidine monohydrochloride in the treatment of gastric and duodenal ulcer. Since ulcers could be produced in 95 per cent of dogs by the now familiar Mann-Williamson technic, these authors were of the opinion that the cause of such ulcers was the loss of some vital substance produced in the animal. Owing to the absence of duodenal secretions under the conditions of the experiment, and since some of the amino acids are normally produced in the duodenum by protein cleavage, Weiss and Aron assumed that patients with gastric or duodenal ulcer had a deficiency of amino acid. The assumption naturally followed that an insufficiency of this vital substance in the cells of the gastroenteric walls resulted in erosion and ulceration

by action of the acid chyme. Their investigations on a few dogs with experimentally produced ulcers with regard to the prophylactic and healing properties of certain amino acids led them to conclude that the gastroduodenal mucosa resists the corrosive effects of the gastric juice under the influence of histidine-tryptophan. On further investigation, Aron concluded that histidine "larostidin" alone apparently had a very favorable effect.

In the past two years numerous encouraging reports concerning the histidine treatment of peptic ulcer have appeared in the foreign literature and several more have recently appeared in the American literature. As many physicians as well as patients are receptive to any new method of treatment, especially when it appears to be effective, simple, and entails very few restrictions, much interest was aroused in histidine therapy. This was abetted by the none too restrained campaign of publicity launched by the manufacturers of the proprietary product.

Parenteral treatment of peptic ulcer is by no means an innovation. For the past fifteen years a wide variety of substances, such as vaccines, specific and non-specific proteins, killed and attenuated bacterial organisms, ferments, various salts, endocrine products, solution of lipo-proteins with emetine "synodal," and, very recently, metallic bismuth, have been used. The proponents of these various methods claimed good results, invariably after insufficient periods of observation; sooner or later, however, these various procedures were relegated to obscurity. This historical fact, coupled with more complete knowledge of the life history of ulcer and the factors involved in its pathogenesis, naturally leaves the circumspect physician unconvinced that another rabbit in the magician's hat, in the shape of amino acids, would do the trick.

Recent clinical and experimental observations throw considerable doubt not only on the effectiveness of histidine therapy, but also on the reasoning or conceptions on which such therapy is based. One may conclude from the independent reports of Kirby Martin and of Sandweiss (Jour. Am. Med. Assn., April 25, 1936) that the

*From the Division of Medicine, The Mayo Clinic, Rochester, Minnesota.

clinical improvement is of a symptomatic and transient nature in nearly all instances. In a paper read at a recent meeting of the American Medical Association, Sandweiss, Salzstine and Glaser stated that injections of distilled water compare favorably with injections of vaccine, larostidin and synodal. Moreover, these investigators were unable to corroborate the original experiments of Weiss and Aron because jejunal ulcers or blood in the stools regularly followed the Mann-Williamson procedure on dogs in spite of adequate daily injections of histidine.

Stalker, of The Mayo Foundation, has recently carried out some experiments on 150 dogs, to determine the prophylactic effect against gastro-duodenal ulceration by cinchophen of various substances, including mucin, duodenal extract, the diet-alkali (Sippy) regimen, milk alone, and larostidin. Briefly, all the controlled dogs developed a chronic cinchophen ulcer within an average of thirty days. Fifty per cent of those treated with mucin developed a typical chronic ulcer. Each dog receiving milk only developed an ulcer but not a severe one. Every dog treated with larostidin developed a chronic ulcer. Stalker was not able to produce a single chronic lesion in any of the dogs treated by the diet-alkali method. A few small, acute lesions were observed. These experimental observations appear significant, and in the main support clinical experience.

The Council on Pharmacy and Chemistry of the American Medical Association properly declared larostidin unacceptable for New and Non-official Remedies because it is marketed with unwarranted therapeutic claims. The Council voted to postpone further consideration of the preparation until adequate clinical evidence of its therapeutic usefulness is available.

GEORGE B. EUSTERMAN.

Memorial Service for Dr. Millard

On Sunday afternoon, June 7, representatives of various medical organizations assembled at the Fairview Cemetery in Stillwater, for the dedication of a tombstone to Dr. Perry H. Millard, first dean of the Medical School of the University of Minnesota.

The ceremony as announced in our May number was carried out as planned, and advantage was taken of the occasion by the various speak-

ers for eulogizing Dr. Millard for his foresight and determination in laying the foundation of the Medical Department of the University. It was Dr. Millard, a practicing physician in Stillwater, who realized the chaotic condition of medical education and practice in Minnesota in the eighties, and was statesman and politician enough to induce the legislature to make provision for a medical department at the University. He also early realized the importance of pre-medical education, the importance of the medical laboratory and early bedside training for the medical student.

Dr. Adam H. Smith, president of the Medical Alumni Association, introduced the speakers. Mr. Andrew Holm, representing the Board of Education of the City of Stillwater, and a former acquaintance of Dr. Millard, gave those in attendance some idea of the personality of Dr. Millard. Dr. H. S. Diehl, present Dean of Medical Sciences at the University, emphasized the importance of carrying on the work initiated by Dr. Millard, and Dr. Louis B. Wilson, who entered the medical school in 1889 and worked under and with Dr. Millard, paid tribute to the first Dean's grasp of the important phases of medical education. Dr. E. P. Lyon, who retires this year as Dean of the Medical School, gave credit to Dr. Millard's ability in impressing the legislature with the necessity of a state-supported medical school. Dr. Guy Stanton Ford, Dean of the Graduate School, spoke for the University in place of President Coffman. Dr. William F. Braasch, as a medical alumnus, mentioned some of the outstanding medical graduates of the medical school begun by Dr. Millard, and Dr. W. W. Will, president of the Minnesota Medical Association, and Dr. C. B. Wright, trustee of the American Medical Association, added their tributes from their respective organizations. Dr. J. T. Christison, in the final address, spoke as a former acquaintance of Dr. Millard and paid tribute not only to Dr. Millard but the group of pioneer medical men who under his leadership helped to launch a medical school of which the state may be proud.

It was Dr. Boleyn of Stillwater who called the attention of Minnesota Medical Alumni to the unmarked grave of this outstanding pioneer in medical education in the state. Although Dr. Millard's name will be handed down to posterity in connection with Millard Hall at the

University, and the mature medical school of today is an actual though silent witness to the foresight and energy of Dr. Millard, the correction of the oversight of his grave seemed necessary to the alumni and was fittingly remedied.

Testimonial Dinner

A testimonial dinner in honor of the retiring members of the faculty of the Medical School of the University was held at the Minnesota Union on the evening of June 10, 1936.

President Lotus D. Coffman presided and later presented Dean Lyon. Dr. Jennings C. Litzberg was the toastmaster.

The retiring members were: James T. Christison, Charles A. Erdmann, James S. Gilfillan, Thomas B. Hartzell, Charles H. Mayo, John T. Rogers, John L. Rothrock, Franklin R. Wright, Elias P. Lyon.

The honored guests were presented by the heads of their respective departments, Dr. C. M. Jackson, Dr. J. C. Litzberg, Dr. O. H. Wangenstein, and by Dr. S. Marx White, and Dr. F. C. Rodda in the absence from the city of Dr. J. C. McKinley and Dr. Irvine McQuarrie. The retiring members responded with vitally interesting reminiscences and anecdotes of the early days of medicine in the state and at the University.

Dr. Adam M. Smith, president of the Medical Alumni Association, announced the establishment of the Elias Potter Lyon Lectureship in honor of the retiring dean.

Dean Harold S. Diehl presented as a gift from the heads of the departments of the Medical School to the University an excellent portrait of Dean Lyon. Dr. Diehl's survey of the development of the medical school was a worthy tribute to the faithful service of Dean Lyon. His period of administration from 1913 to 1936 covered twenty-three of the forty-eight years of the existence of the medical school. In this period, the medical school achieved high standards and, with the Mayo Foundation, also leadership in graduate training and research.

Dr. W. J. Mayo accepted the portrait for the Board of Regents of the University and expressed their thanks and appreciation. Dean Lyon's response indicated that retirement would not still the interest with which he and others would watch future medical progress.

This recognition of the retiring members of the medical faculty emphasizes that the high plane of medicine in Minnesota was not attained through chance, but was built in a considerable measure by the vision and faithful service of members of the faculty. Its leadership, its rank and file, including full-time men and practicing physicians, all contributed their part to make the standards of Minnesota medicine high.

EDUCATION GUIDES THE YOUNG TO GOOD CITIZENSHIP*

WILLIAM J. MAYO, M.D.

Rochester, Minnesota

IN no other country in the world does just such a gathering as this occur, where the students of people from the entire range of our society come together on a basis of equality and are sent off on that basis to render the highest known service.

The outstanding feature of American public life today is reverence for education. The cost of education borne by the American people is greater than any other expense supported by the people, and this burden is borne willingly, with the expectation that finer citizenship will be the result, and with the hope that the democratic form of government, to maintain which the nation has offered life and wealth in four great wars, shall be made safe and dependable in the years to come.

As one travels through the United States one is impressed by the splendid school buildings seen in all sections. In nearly every village, no matter how remote or how poor, will be a structure, the school building, which is magnificent compared with its surroundings, a source of pride to the inhabitants, and regarded by them as a hostage for the future. The school house is the proud monument to the desire of the people that their children shall receive a better education than they themselves had. It is a visible testimonial of their loyalty to the country in which they live, and of their resolute determination that its future shall be made secure, not by efforts of arms but by efforts of intellect. Apparently there is an unconscious feeling that if we are to have the government we desire, and prosperity for all, it must come from education.

Value of Youthful Viewpoint

There is a divine discontent with the existing order of things which leads to progress. Youth is ever insurgent, dissatisfied with conditions as they exist, and this state of mind is necessary to progress. Youth has visions of the future which are not shared to an equal extent by those of middle and later age; youth is a

*Commencement address, Notre Dame University, Notre Dame, Indiana, June 7, 1936.

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builder of images, a dreamer of dreams. When guided by scientific imagination, youth builds images to be compared with known facts, and dreams true dreams.

We of the older generation admit freely that our viewpoint has been greatly influenced by the misfortunes through which we have passed. We believe too often, as our elders believed, when we were young, that youth is headstrong, unruly, without due reverence for the established order of things.

The older generation is always uncertain about the younger generation. In the earlier time young people were kept innocent, perhaps ignorant, with the expectation that innocence would be a protection to their morals and ethics. The young people are more sophisticated today, and perhaps because they know more of evil they will be better protected from it than they would had the so-called innocence of last generations been maintained.

The old should remember that they represent the past, and that the young represent the future. For the best results, the wisdom of age must travel with the dreams of youth. Age carries mental scars left by experience which shorten vision, but age carries wisdom. Youth and age should travel together; each needs the other for orderly scientific advancement. Age, if it has gained something which is personal to the individual so that he has something to lose, will probably be conservative and will fear new experiences. Imagination is the gift of youth. In my hospital ward rounds I am always surrounded by the younger men; I give them from my experience, and they give me their fresh viewpoint.

Present Day Educational Tendencies

A smart column writer recently said that culture is what a person has left when he has forgotten what he learned in college. After I had had my laugh, I began to wonder whether there was not a good deal of truth in this definition of culture, for, after all, college education is supposed to teach us how to think as well as what to think. It is supposed to develop the power of reasoning and observation, to fire the imagination. To repeat what we have memorized, of itself, is not more in effect than is done by a phonograph record, and perhaps is just about as informative.

I sometimes question whether the present tendency to depend so much on memorizing knowledge gives a sound basis of education for the future. Knowledge is static; wisdom is active and moves knowledge, making it effective. As I think back on my own classmates in college, I am impressed with the fact that many of them who had fine memories and stood at the heads of their classes, in some way in the after years missed acquiring wisdom and did not come up to our expectations. Some students can fill their minds with any given subject, book, chapter, and page, and can regurgitate this knowledge at examination and thereby win class leadership. Such memorizing of knowledge has not necessarily relation to wisdom. After all, the best the college can do is to give the students breadth of knowledge, not necessarily depth of knowledge.

As I look on the present day tendencies in higher education, I notice a remarkable difference from conditions as they existed when I was a college student. The valuation of culture for its own sake was then in the ascendancy, and our eyes were fastened almost wholly on the past. And yet, knowledge of the past gave the foundation upon which has been built the present, and upon which we predict the future.

Personally I have not been in sympathy with the view that, because there are already so many well-trained men, something must be done to prevent younger men from entering our professional schools. It certainly is a sad commentary on our times if we introduce unnecessary obstructions and obstacles to prevent students from entering the professions or to trap unwary students, so that they may be prevented from continuing their studies after their course is started, unless such procedures result in turning out better men and are not merely evidence of an unconscious trade-union state of mind which tends to make a profession an aristocracy.

Let us not get the idea that there are too many doctors, too many lawyers, architects, engineers, nurses, grocers, coal-miners, and what not. As a matter of fact, it would appear that there are too many of all of us, yet that assumption of itself refutes the argument that we must reduce the number in each class. It is almost a paradox that when we have too much of everything collectively, we worry most because we have too little individually.

The history of a growing civilization teaches the wisdom, in fact the necessity, in developing a community life, of loving one's neighbor as oneself. This precept is not only biblically and historically true, but the peace of the world depends upon it. As we become more civilized we are beginning to emphasize not the differences that lead to antagonism but the common impulses and desires which lead to better understanding.

Today is commencement day for you, and it means just what it says, not the end of education but the beginning of education which comes from living with our fellow men. General adult education progresses through books, newspapers, and, to some extent, perhaps, through the radio and even the movies, but it is a different kind of education from that begun in the schools and colleges. Good roads and automobiles have enabled us to become better acquainted with different sections of the country, and if we are observing, we begin to get the idea, after all, of the solidarity of the American people.

What holds us together fundamentally is respect and affection for our country. We love the American flag because it symbolizes that we are joined together for certain definite life purposes. Let us not be discouraged by the fact that some of those among us, and especially young people, profess to scorn the Stars and Stripes and thereby refuse, by implication at least, to do their share in maintaining the welfare of all of us. So many who are discontented with their lot and condition believe that by criticism they are testifying to their natural desire for betterment. What they really are testi-

lying to is that for the time being they are not content to share the collective responsibility of the people as a whole.

The large majority of the citizens of the United States are reasonably intelligent and, as far as their knowledge goes, are reasonably fair-minded. Let us admit that we are governed by the average man doing the best he can to adjust governmental procedures to do justice to all, but subjected to all sorts and kinds of propaganda. Many of the proponents of the various schemes and projects to cure our political ills, because they cannot marshal facts to appeal to the intelligence, must therefore, to gain a hearing, appeal to the emotions, which are only too easily aroused by prejudice, invective, and misleading statements. As a matter of fact, it appears at the present day to be quite the thing for some of the intellectual high-hats to try to prove that all the beliefs and institutions we hold dear are delusions. The so-called intelligentsia have been most vociferous in this direction; as an intelligent observer defined them: they are people who have been "educated beyond their intelligence."

It is easy to philosophize; the philosopher is said to be one who bears with equanimity the sufferings of others.

Dr. Morris Fishbein, in discussing the present social, political and economic trend, told the story of the philosopher and the psychologist. The philosopher, a blind man, in the middle of a dark night goes down into an unlighted cellar and hunts for a black cat that is not there; the psychologist is a blind man who, under the same conditions, makes the same search but finds the cat.

It is easy for all to recognize that a change is coming in the social condition of the people of the United States which in a way is comparable to the change that is taking place in older countries through the elimination of hereditary royalty and nobility. Fortunately it does not take the average American citizen long to recognize that radical change from a government "of the people, by the people, and for the people" which permits of free debate and expression of opinion would be disastrous. As a people, we realize how much better we are situated than are those peoples under the governments of communism, nazi-ism, or fascism, which promptly become tyrannical in order to enforce, through fear, the viewpoint of an organized minority which eliminates debate, free thinking, and other fruits of education. But we must ever recognize that the majority of our people must have so satisfactory a social condition that they will not become so desperate as to be misled by pernicious propaganda of this description.

One thing we all can agree upon is the value of education and faith that education will enable the young who are to take our places to solve their problems as we of the older generations solved ours. Out of this composite education we finally accept the idea that man does not live for himself alone but as an integral part of society.

As one reviews the history of man, noting the changes that are manifest in his increasing perception

of cultural things, the imagination always developing on the basis of the facts as they appear, it is obvious that the study of biology has been largely neglected by many of our institutions of learning. It is of great interest to know that Notre Dame accords a place to biology, as witnessed by the new building and increased equipment which are projected for the study of this fundamental science.

My father lived in the time of the pioneer. My brother and I have lived through the time of the development of a great country: wasteful, profligate, yes, but still a great country. Today the people at large are pinning their hopes of the future on the Stars and Stripes, the flag of education.

And let me say that these remarks have been made as a prelude to the corollary that education does pay.

Diatone: An Alleged Insulin Substitute

According to the advertising literature in the files of the Council on Pharmacy and Chemistry, Diatone is claimed to contain in each 5 grain tablet "1 grain of colloidal uranium, together with whole pancreatic substance (which is employed simply as an intestinal digestant and not as a hormone substitute) together with other [sic] excipients." It is proposed by the firm for oral administration in the treatment of diabetes. As yet there is no preparation for oral use that can adequately substitute for insulin in the therapy of diabetes. Diatone, if it contains the amount of uranium that the firm claims it does, must be classed as a dangerous preparation. While the exact nature of the uranium in Diatone is not clear, even if this is in the form of the metal or of one of the relatively insoluble uranium compounds, such as the oxide, enough uranium may nevertheless be absorbed, through the solvent action of the hydrochloric acid of the gastric juice, to produce serious systemic poisoning.—(J. A. M. A., May 30, 1936, p. 1939.)

FATAL ASPHYXIA IN A CASE OF RETROPHARYNGEAL ABSCESS

(Continued from Page 462)

factors beforehand, or of anticipating the fact that the mere introduction of a tongue depressor would have such fatal results. If it could have been foreseen, the only alternative would have been to do a preliminary tracheotomy, or enter the abscess by way of a pharyngotomy. However, unless definite indications warranted, one would hesitate to employ such drastic measures for a condition which usually can be treated by a single incision, without permanent deformity.

Conclusions.—A retropharyngeal abscess should always be considered a serious condition. The symptoms encountered in such cases may not give us a true picture of the advanced stage of the laryngeal and esophageal obstruction and the resulting oxygen deficiency. Any intraoral manipulations may bring about complete laryngeal obstruction and so cause irreparable damage in the form of asphyxia. Early diagnosis of the condition is the only safeguard against such disastrous results.

Reference

1. Henderson, Yandell: Fundamentals of asphyxia. Jour. Am. Med. Assn., 101:261, (July 22) 1933.

MINNESOTA MEDICINE

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association

B. J. Branton, M. D.
L. H. Rutledge, M. D.

W. F. Braasch, M. D., Chairman

J. C. Michael, M. D.
A. N. Collins, M. D.

Your Standing Orders

1. To keep in constant and intimate touch with all local county boards concerned with welfare work with a view to—

Making proper arrangements for care of the sick poor.

Making whatever local arrangements are necessary for medical, hospital and nursing care allowed by law to old age pensioners.

2. To make the acquaintance of your Senator and Representatives and to keep in touch with them with a view to—

Keeping them informed about medical problems involved in the care of the sick poor and the aged.

Keeping them informed concerning the importance to the public welfare of protecting our Basic Science Law against attacks from cultists and irregulars.

Keeping them informed of the attitude of the practicing profession toward any form of socialization of medicine that endangers the doctor-patient relationship; the freedom of the physician from lay interference; the freedom of the patient to choose his own physician.

The above are needed all the year round. It is not sufficient to make them a county society project for one month or two months.

That is the reason why we have set them off in a place of prominence and called them "Standing Orders" this month.

If unwise and improper regulations with regard to the care of the indigent and relief generally are allowed to persist—if improper and evil legislation is passed, it will be because somewhere physicians are failing in these two obligations.

Read them each month at your county society meetings and check up to see if, in fact, they are being carried out. Your professional welfare as well as the public interest is at stake.

Kansas City Meeting

Many matters of grave importance to American medicine and to the American public received attention and action by the House of Delegates at the Kansas City meeting of the American Medical Association.

With characteristic clear-sightedness and balance, the association continued to keep clear of doubtful social experimentation and questionable propaganda.

Its wisdom and common sense were demonstrated in many directions during the conclave.

Public Welfare

Among various actions of the delegates relating directly to the public interest was a long series of resolutions. Among these the following are of especial interest:

A committee is to be appointed to study and report upon the problem of motor accidents and injuries.

A study and report is to be made upon prevention of deaths from asphyxia.

Methods of air-conditioning are also to be studied and reported upon.

The delegates went on record as opposed to irresponsible promotion and marketing of mechanical aids to the detection of deafness.

They registered their disapproval, also, to the sale, without prescription, of such dangerous drugs as canabis, the barbituric compounds and denitrophenal.

The delegates likewise accepted the following interesting report upon the reliability of blood tests to determine paternity which may have considerable effect upon future legal maneuvers and prevent some long drawn out and futile litigation.

tion: "It is not possible," says the committee, "to state with any degree of certainty that the child is offspring of a certain adult or that the latter is the father or mother of the child on the basis of any examination of the blood."

Medical Standards

Of special interest to practicing physicians as bearing directly upon medical organization and maintenance of high standards of medical training and practice were the following recommended by the Council on Medical Education and Hospitals:

1. That physicians on the staffs of hospitals approved for intern training be limited to members in good standing of their local county medical societies.
2. That the teaching of medical economics in the medical colleges is of the first importance and that the necessity for development by the deans of the medical faculties of competent teachers in this branch should be stressed.
3. That careful study should be made of proper methods for improving entrance requirements as to character and fitness of students entering upon medical courses in educational institutions.

Radiology

The House also adopted the recommendation of the Council and Reference Committee that the following principle, first enunciated by the House in 1934, be reiterated: "That the practice of radiology, whether for diagnostic or therapeutic purposes, constitutes, in fact, the practice of medicine." It further recommended that all services connected with the practice of radiology be under direct control and supervision of the medical profession and that this same principle apply to all other technical and professional services.

From the Bureau of Legal Medicine

Of great moment to the physicians were the recommendations and comments made by the Bureau of Legal Medicine and Legislation, all of which were approved by the delegates.

The bureau recommended, and the Reference Committee endorsed, the coöperation in good faith of the medical profession in carrying out the provisions of the Social Security Act, having the following point particularly in mind:

Social Security: Local Problem

That the basic requirements of the federal legislation are so broad as to permit the creation within the state social legislative structure of conditions which may be very difficult of administration in a manner acceptable to physicians if the local profession does not participate in the organization of the state structure.

Miscellaneous

Attention was called by the Bureau, also, to the fact that while, in many states, emergency relief officers and supervisors of the poor have declined to assume responsibility for medical relief to individuals employed on WPA, there has recently been a tendency to relax the restriction and recognize the responsibility to provide medical service at public expense for those not receiving a sufficient government wage to provide for themselves.

* * *

No enlargement of the privileges of veterans with respect to medical or hospital care is being pressed by either the American Legion or the Veterans' Administration, according to reports cited by the Bureau.

* * *

With reference to current and pending investigations of silicosis and other occupational diseases, the Bureau and committee went on record as opposed to the creation of any non-medical agencies for study or control of industrial health conditions. These medical functions should be performed by medical men under medical supervision.

* * *

Legislation concerning the reporting by physicians of gun shot wounds should be opposed unless the same requirements are to be imposed upon every other person having knowledge of the wound and the possible conditions under which it was inflicted.

* * *

In this connection, at the recommendation of the Bureau, the House went on record as condemning the practice of performing operations designed to alter appearance with the object of concealing the identity of the individual.

No Compulsory Health Insurance

The Bureau called especial attention to the fact that no legislation establishing systems of compulsory state health insurance have been enacted in any of the states. With the approval of the House, it went on record as regarding as inexpedient the establishment of a United States Department of Health with a cabinet officer at its head.

Medical Economics

Two important studies were reported as underway by the Bureau of Medical Economics. The one on "Group Hospitalization," though still incomplete, suggested much reason for caution so far as plans for this type of hospitalization are concerned.

Says this provisional report of the Bureau: "Returns to date suggest that the importance of group hospitalization plans has been overestimated when measured by the actual number of plans in operation and the number of members enrolled."

The suggestion is made that if these various plans were forced to comply with the principles of insurance laws in the respective states a desirable measure would be provided for the safety of the insured and protection against an unfavorable reflection upon physicians who, in some instances, are actively favoring the establishment of unsound or insufficiently tried plans.

The other report, which will be awaited with interest, concerns the relation between medical ethics and medical economics with a view to clearing up misunderstandings on both accounts.

Legislative Committee

Among the activities reviewed by the Legislative Committee worthy of special note here was the association of Drs. R. L. Sensenich and F. S. Crockett with the women's section of the American Farm Bureau Federation which prevented that body from adoption of a policy in favor of social insurance for sickness.

This association brought to a focus the problem of medical service in rural communities which is admittedly difficult in many localities where the cost of transportation from great distances must be added to the bill that the farmer must pay for medical service.

A study of the actual situation all over the United States was undertaken, as a consequence,

under the auspices of the Bureau of Medical Economics. Partial results of this study do not show an acute problem in many sections. Nevertheless, the committee is of the opinion that the subject of fees based upon mileage requires further study on the part of each state and county society, looking to a possible readjustment to relieve the profession as a whole from the implication of unfair charges in the rural districts.

Washington Conferences

The committee, in a series of conferences in Washington, found great interest displayed by the American Legion and the Veterans' Administration in maintaining high standards of practice in the Administration facilities and in utilization of the material afforded there for investigation and research:

The committee found, also:

That there is much interest in high quarters in Washington in the passage of a really effective Food and Drugs Act (recent communications from Dr. W. C. Woodward of the Bureau of Legal Medicine and Legislation indicate that the currently proposed act is not effective and, if passed as it now stands, will work more harm than good).

That an appalling number of physicians convicted of the illegal use of narcotics are allowed by licensing boards to continue in practice:

That the medical officials of the Children's Bureau, the Maternal and Child Health Service and the Services for Crippled Children give every evidence of a sympathetic point of view toward the medical profession in the administration of Social Security activities; but that, if state medical societies show no interest or are unable to secure satisfactory state organization for administration of the act, Bureau representatives in Washington will be unable to solve the local problem.

Opposed to "Company Doctors"

That American Federation of Labor leaders are opposed to sickness insurance, being especially opposed to "contract doctors," "company doctors," "political doctors."

That the committee instructed to consider the possible reorganization and coördination of the executive agencies of the government in the interests of efficiency and economy is not likely, in view of the tremendous cost of sickness insur-

ance, to find a place for such government insurance in their plans.

State Licensure

The serious matter brought up by the Legislative Committee of the failure of licensing boards to discipline physicians reported by the United States Commissioner of Narcotics was taken up in Executive Session by the House of Delegates. The recommendation was made that the state societies take the matter up with their own state licensing boards.

It was the belief of the special committee which reported at this session that matters of licensure and discipline are state problems and should be kept strictly within the jurisdiction of the states.

The warning was issued that failure to handle the problem satisfactorily is likely to result in federal legislation on the subject.

Excluding Felons

In this connection it is of interest to note that an amendment to the By-laws of the Constitution was offered and passed to make the first sentence of Chapter XI, Section 1, read as follows: "Membership in this Association shall continue only so long as the individual is a member of a component society of the constituent association through which he holds membership and is not now serving or within twelve months has not served a sentence for a felony."

The By-laws were also amended to give the Judicial Council of the American Medical Association power to investigate and discipline in instances of unethical conduct of members when, in its judgment, the instances are of greater than local concern. This important amendment reads in part as follows: "... That the Judicial Council shall have the power . . . to request the President to appoint investigating juries to which it may refer complaints or evidence of unethical conduct which, in its judgment, are of greater than local concern. Such investigating juries, if probable cause for action shall be shown, shall report with formal charges to the President who shall appoint a prosecutor who, in the name of and in behalf of the American Medical Association, shall prosecute charges against the accused before the Council. The Council shall have power to acquit, admonish, or expel the accused."

Contraceptives

The Committee to Study Contraceptive Practices, appointed a year ago, reported as follows to the Executive Session:

That there is good evidence to show that a constantly decreasing fertility is not off-set, as the propagandists insist, by the decreasing mortality. That there is little scientific evidence to justify limitation of conception either for eugenic reasons or for the establishment of a better social and economic equilibrium. That, while voluntary limitation of conception may be necessary to safeguard health in some cases, there is no evidence to show that any existing laws interfere with any medical advice on this score that the physician may deem necessary for his patients. That, on the other hand, no type of contraception is reasonably adequate and effective for a large portion of the population. That the only 100 per cent safe and effective method of limitation of births is by continence and that continence practiced by married couples during an assumed fertile period of the month carries with it no moral objections.

The recommendations of the committee adopted by the House were:

1. That a committee be appointed to continue this study and report to the House of Delegates.
2. That the disapproval of the committee be recorded against propaganda directed to the public by lay bodies organized solely for the purpose of disseminating (without consideration or restraint) contraceptive information. The committee deplored the support of such agencies by members of the medical profession. It felt that an entirely false sense of values with respect to the important function of childbearing and parenthood has been created by the activities of such organizations.

Medical School Policies—and the Alumni

From a talk delivered by Dr. W. F. Braasch, Rochester, at the dedication ceremonies held at Fairview cemetery, Stillwater, for the monument recently erected at the grave of Dr. Perry H. Millard, first dean of the University of Minnesota medical school, by the Minnesota State Medical Association and the Medical Alumni of the University.

"The alumni of the University Medical School

have always maintained a sincere and loyal regard for their Alma Mater. They have rejoiced in its progress and are proud of the high standing it maintains among the leading medical schools of the country. They have always taken a keen interest in the various policies adopted by the University in the course of its development. They may not always have been in agreement and, in fact, occasionally they have been frankly antagonistic, unwisely so at times as subsequent experience has shown, but always sincere in the belief that they acted for the best interests of the University. They fully appreciate the attempts made by the University, and those which it is planning to make, in the highly important function of keeping its graduates in touch with the rapid advances of modern medicine.

Alumni Opinion

"We alumni fully believe that the University is intensely interested in our welfare and that it is eager to give us every possible assistance in furthering our work. It is in fact inconceivable that our Alma Mater would deliberately injure its offspring. We do not believe that the University would in any way assume the rôle of competitor, or that it would adopt an attitude which is not in harmony with methods of medical practice endorsed by organized medicine and which from long experience have proved to be in the best interests of public welfare. While in no way wishing to dictate to the governors of university policies, it would seem that alumni opinion should deserve respectful consideration in the final adoption of such policies which affect the medical profession.

Keep Accurate Records says the Medico-Legal Advisory Committee

That the majority of malpractice suits are preventable is agreed by all. That professional jealousies, lack of tact, and vague insinuations cause 98 per cent of these suits which might be more successfully defended if adequate and accurate records were kept, no one denies.

The busy doctor often loses sight of the protection afforded by detailed office or hospital records and is brought forcefully to a realization of their necessity when called into court to testify not only in civil or criminal litigation but to de-

fend a suit involving his professional conduct of a case.

A meticulous jotting down of happenings in a history from day to day is burdensome, but when one is filled with sufficient facts with which to refresh his memory then the chagrin of a lack of good details which discloses slovenly practice to the public and jury is avoided. Of course, one should always avoid any appearance of subsequent tampering. Records should never, under any circumstances, be rewritten or effaced.

To the patient his case is the only one of the kind. Every word the doctor says to him is held in his memory to be brought out at the opportune time. Good records are the store house of the words and acts of the doctor and they should be kept accurately. They are the manifestations in writing of confidences exchanged and should be held so at all times.

From the Hypocratic oath one learns "Whatever in connection with my professional practice, or not in connection with it, I may see or hear, I will not divulge, holding that all such things should be kept secret," but neither this nor the privilege statute applies to the testimony of the attending physician when he is sued for malpractice since he would be wholly without any defense if they did. He must rely almost entirely on his memory to defeat his accuser if complete records are not available to him.

Hearsay evidence in court is not allowed, but an account of the case, in the attending doctor's handwriting in ink, dated and signed by him when made, cannot be refuted by anyone.

Knowing that every medical or surgical case treated is a potential suit, the Medico-Legal Advisory Committee of your state association asks each member to "look well to his records."

Hospitalizing the Indigent

The state law governing hospitalization for the indigent in Minnesota has been subject to much misunderstanding, official as well as unofficial.

Many counties appear, in spite of the clearly stated law of 1935 (printed in these columns in full in the June 1935 issue), to be operating upon an erroneous interpretation of the law of 1921.

Delegates at the Rochester meeting discussed the matter at length and reflected considerable uncertainty of the law as it stands today.

The following history and interpretation is supplied at the suggestion of the delegates by

Mr. F. Manley Brist, attorney for the Minnesota State Board of Medical Examiners. It should be read carefully by all physicians who are concerned in any way in the care of the indigent.

Says Mr. Brist:

Original Enactment

"The original so-called University Hospital law was passed at the 1921 session of the legislature, it being Chapter 411 of the Session Laws for 1921. In creating the Minnesota General Hospital the legislature said:

"Said Minnesota General Hospital shall be primarily and principally designed for the care of legal residents of Minnesota who are afflicted with a malady, deformity, or ailment of a nature which can probably be remedied by hospital service and treatment and who are unable, financially, to secure such care or, in case of a minor, whose parent, guardian, trustee or other person having lawful custody of his person, as the case may be, is unable financially to secure such care. The Minnesota General Hospital is hereby designated as a place of treatment for such persons.

"Said hospital shall be utilized for such instruction and for such scientific research as will promote the welfare of the patients committed to its care, and assist in the application of science to the alleviation of human suffering."

"The wording of this section caused some county attorneys to rule that the University Hospital was the *only* hospital at which the indigent could be hospitalized. As a matter of fact, however, in some counties the indigent were being hospitalized locally, the hospitals were being paid and so were the physicians. In other counties the indigent were being taken outside of the state to be hospitalized. All of these things created more misunderstanding and more bad feeling.

Law of 1933: Objectionable Features

"In 1933, Chapter 393 of the Session Laws for that year was enacted. However, this law was limited to counties having a population of not more than 70,000 and not less than 50,000 inhabitants and any county adjoining on such county. There are only two counties in Minnesota within that classification, the counties being Stearns and Ottertail. This law also restricted the hospitalization of the indigent in such counties to a hospital rated Class "A." The law had the further objectionable feature that the County

Board in these counties could enter into a *contract* 'with such hospital to care for, treat and hospitalize the indigent.'

"The law was also objectionable in that the amount to be paid for hospitalization could not exceed the charge then made by the University Hospital in indigent cases. This charge was to be inclusive 'of medical and surgical care and treatment.' This wording resulted in the local hospital at St. Cloud receiving one half the full rate charged at the University Hospital and deprived the medical profession of any compensation for their services. This law did not have the approval of the Minnesota State Medical Association for the reasons that I have pointed out. It is my further opinion that the law was unconstitutional. I do not believe the medical profession can be required by law to furnish free medical services to any one. Private property cannot be taken for public use without just compensation, and I think the doctrine applicable to professional services would be the same. Furthermore, hospitals as such cannot practice medicine as defined by law and consequently the medical profession objects to the County Board making contracts with hospitals for medical and surgical treatment.

Objectionable Features Remedied: 1935

"At the 1935 session of the legislature a bill was introduced, unsolicited by the Medical Association, that had for its purpose the hospitalization of the indigent 'within the county or elsewhere within the state.' This bill was introduced by a number of members of the legislature who claimed that there were 860 cases on the waiting list at the University Hospital, and that it was unfair to the patient and also to the local hospital and local medical profession, to send all surgical cases to the University Hospital. This bill was not introduced at the request of the medical profession. Following its introduction we asked that a number of amendments be made in order to remedy the evils of the 1933 law and to clear up any misunderstanding as to whether or not the Board of County Commissioners could hospitalize the indigent locally if they so desired. This law in no way amends the University Hospital law. It simply gives the Board of County Commissioners the right to decide whether or not they wish to hospitalize them at the University Hospital or within the county, or elsewhere within the state. Considerable complaint has been

made to the State Medical Association that the indigent in Fillmore and Houston Counties are hospitalized at LaCrosse. This situation was corrected insofar as the law is concerned in the 1935 law. In addition the law was changed to read:

"The cost of hospitalization of such indigent persons, exclusive of medical and surgical care and treatment, shall not exceed in amount the full rates fixed and charged by the Minnesota general hospital."

"The word 'contract' was also stricken from the 1935 law and the expression that the County Board 'is hereby authorized to provide for the hospitalization' was inserted. The 1933 law, as I have explained, was applicable only to counties with a population of fifty to seventy thousand inhabitants and counties adjoining thereon. The 1935 law was made applicable to the County Board of any county in the state.

"All in all we were of the opinion that the 1935 law is much more fair to the medical profession and the hospitals throughout the state than the 1933 law. No attempt was made to in any way interfere with the wording of the University Hospital law. If the County Board so decides it may send patients to the University Hospital. If it decides otherwise, the patients can be hospitalized locally."

Program for Crippled Children

Social Security funds available under Title Five of the Act in Minnesota are being administered by the Board of Control under the immediate supervision of Dr. H. E. Hilleboe, director of the Tuberculosis Division of the Board of Control.

Approximately \$50,000 is available under this title of the Act for care of crippled children and the money is to be administered by the state agency that is already in charge of the state's program for crippled children.

According to the immediate program outlined by Doctor Hilleboe before the Council and the House of Delegates in Rochester, this money was to be put to use to hospitalize crippled children now on the waiting lists for the Gillette State Hospital for Crippled Children, the Eustis Memorial Hospitals at the University and the Shriners' Hospital. There were about 200 of these children, Doctor Hilleboe reported, some

of whom had been waiting for as long as two and three years.

These children were to be hospitalized in other approved hospitals under care of orthopedists selected in consultation with the Minnesota-Dakota Orthopedists' Club.

Rates of Pay

A standard rate of payment of two dollars for each hospital day for the surgeon and four dollars a day for the hospital with an extra allowance of two dollars a day for x-ray, braces, plasters, casts and other appliances was agreed upon with the orthopedists. The rate was found to be satisfactory to the hospitals on the approved list and hospitalization on these terms is now under way.

In addition, Social Security funds are being used to assist in financing a series of orthopedic clinics in coöperation with the Minnesota Public Health Association and the State Department of Education. These clinics provide opportunities for consultation between local family physicians and the specialists on the home care of crippled children and also a means of discovering those who need hospitalization. The State Department of Education participates to make plans for the education and re-education of cripples wherever it is needed. The health association organizes the clinic and makes all essential lay contacts with parents, local organizations, newspapers.

The employment of several follow-up nurses whose business it will be to keep in touch with children who have been dismissed from the hospital but who need supervision to see that proper procedures are carried out is also contemplated as a means of releasing some children earlier from the hospitals.

Herman Johnson Memorial Fund

Among many interesting letters that are reaching the committee in charge of the Herman Johnson Memorial Fund is this one which shows not only the generosity of the writer but a sense of special obligation that has been noticeable in many other letters from associates of "Herman" whose name, says this writer, is well known to medical men in the state:

"Your circular letter of June 3 is at hand. I am enclosing a check for \$10.00 as my contribution to this fund with the understanding that I am willing to contribute to the extent of

\$100 provided the \$2,000 limit is not subscribed. I believe that this is a fund that should be made up of small contributions from practically the entire profession. I do not wish to criticize your methods, nevertheless, I think if you had sent communications to each member of the profession asking them outright to send two dollars and not equivocate in any way that you would have succeeded in getting the money very promptly. . . ."

At the time this issue went to press the fund had reached \$1,129.75, a little more than half the amount required to establish the Herman M. Johnson Lectureship on a sound permanent basis. Contributions should be sent to state headquarters, 11 West Summit, St. Paul, Minnesota.

Health Survey

Requests for medical confirmation of diagnoses secured by enumerators for the Health Survey of the United States Public Health Service are now going out to physicians in Minnesota. They are going only in cases where consent has been secured from the persons interviewed, according to Mr. Russell H. Ewert, St. Paul, acting state supervisor for the Health Survey in Minnesota.

A part of an opinion by Attorney General Harry H. Peterson on the legality of the procedure, recently secured for Mr. Ewert, is quoted herewith:

"... We do not believe there is anything illegal in the procedure . . . if all the information obtained is given voluntarily and with the consent of the individual concerned, where such information is used for statistical purposes only in the manner you have asserted it will be used.

"We may, however, suggest that, as an additional precautionary measure, it might be advisable in each case to have the written consent of the person concerned before the physician treating such person is questioned by the United States Public Health Service."

In the Same Boat

There is an interesting parallel between some of the difficulties in which private business finds itself these days and the problems of the medical profession.

Business is looking with alarm upon the co-operatives which have revived of late and are

said to have done a \$500,000,000 volume of business in the United States in the last year.

These new co-operatives are using modern competitive methods of advertising and organization. Along with other so-called non-profit organizations, they are exempted from the income tax and they are naturally viewed with dismay by private business according to Eugene Whitmore writing on "Tempest in the Co-op Teapot" in the June issue of *American Business*.

Mr. Filene Again

Furthermore, the same Edward A. Filene who has interested himself in sickness insurance for America has announced recently that he is providing \$1,000,000 in cash for organization expenses incident to the promotion of a national group of consumer co-operative department stores.

The American medical profession is now beginning to be confronted with a situation in which the glittering promises of the consumers' co-operatives may be extended to medical care.

To be sure, the parallel between business and the delivery of medical care cannot be carried beyond a definite point. After that, it falls down quickly. The method of delivery for oil or tires, for instance, does not necessarily affect the quality of the oil or tires themselves. If one system of distribution is able to deliver the same articles cheaper in the long run than another, then there is no loss to the consuming public.

But medical service is not like oil or tires and a very inferior service reaches the consuming public under the co-operative or socialized system of delivery for medical care. Furthermore, its purveyors, reduced to clerks, are transformed into a politically controlled profession of time servers.

Minnesota State Board of Medical Examiners

Polk County "Naturopathic Physician" Sentenced by Court

Re: State of Minnesota vs. Luross

Knut H. Luross who holds no license to practice any form of healing in the State of Minnesota was sen-

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tenced on June 16, 1936, to a term of six months in the Polk County Jail by the Honorable James E. Montague, Judge of the District Court at Crookston, Minn. Luross was convicted by a jury in the District Court of Polk County on March 12, 1936, on an information charging him with practicing healing without a basic science certificate.

For several years the above defendant had maintained an office at Fosston, Minnesota, where he represented himself to the public as a chiropractor and as a naturopathic physician, notwithstanding the fact that he had no license. Following the conviction of the defendant in March, Judge Montague granted a stay of thirty days to give the defendant an opportunity to appeal the case to the Supreme Court in Minnesota. However, no appeal was taken.

When the defendant was called before the Court for sentence, Mr. W. E. Rowe of Crookston, who appeared for the defendant, objected to any statement being made to the Court by Mr. Brist on behalf of the Minnesota State Board of Medical Examiners. Instead of discussing the merits of the case Mr. Rowe complained about the defendant being persecuted, and admitted that he did not even know whether or not Luross had been carrying on his practice since his conviction. Mr. Rowe further stated that a suit would be brought against the Basic Science Board on behalf of Luross to obtain a basic science certificate for him without examination. Judge Montague permitted Mr. Brist to make a statement concerning the case on behalf of the Minnesota State Board of Medical Examiners. It was pointed out to the Court that Luross was first arrested in 1931; that for more than five years he has practiced healing in defiance of the laws of this State. The Court was also informed that in 1931 Luross was going to institute a suit against Basic Science Board to obtain a certificate of registration without examination, but no suit was instituted by Luross. One was instituted, however, on behalf of W. W. Shenk. The Shenk case was decided against the naturopaths in the District Court of Hennepin County and in the Supreme Court of Minnesota.

At the conclusion of the proceedings Judge Montague placed the defendant on probation for the period of one year. Luross is to absolutely refrain from practicing healing in any manner unless licensed. Judge Montague also informed Luross that if he violates the conditions of the suspension the sentence will be put into effect.

The State Board of Medical Examiners wishes to make its position clear in this matter by stating that every opportunity has been given Luross in the past five years to comply with the laws of the State of Minnesota, but he has not done so and he will not be permitted to practice in this state unless properly licensed. In the event he attempts to do so the Minnesota State Board of Medical Examiners will take the steps that are necessary not only to put a stop to it but to see that the defendant is punished for doing so.

JULY, 1936

Unlicensed Rupture "Expert" Stopped at Moorhead

One J. E. Squire, forty-two years of age, claiming to represent the Wm. S. Rice Company of Adams, New York, was ordered to refrain from practicing healing at Moorhead, Minnesota, on May 15, 1936. An advertisement had appeared in the local paper reading as follows:

COMING TO END RUPTURE TROUBLES

Representatives of Wm. S. Rice, Adams, N. Y., originator of the Rice Method for the self treatment of rupture at home, will be at the Comstock Hotel, Moorhead, Minn., afternoon and evening of Friday, May 15, to give a personal and free trial of his method to all sufferers who want to end rupture trouble and truss wearing.

No matter how bad the rupture, how long you have had it, or how hard to hold; no matter how many kinds of trusses you have worn, let nothing prevent you from getting this FREE TRIAL. Whether you are tall and thin, short and stout, have a large abdomen, whether you think you are past help or have a rupture as large as your fists, this marvelous Method will so control and keep it up inside as to surprise you. It will so restore the parts where the rupture comes through that soon you will be as free to work at any occupation as though you have never been ruptured.

The trial will be absolutely complete and thorough without a penny of cost.

You owe it to your own personal comfort and safety not to miss the great free demonstration. It is a real opportunity to learn how you may be done with chafing trusses and the danger, suffering and trouble your rupture has caused.

The hours are 1 to 5 p. m. and evenings 6 to 9. Remember the dates and place. Comstock Hotel, Moorhead, Minn.

At the office of Mr. James A. Garrity, County Attorney of Clay County, the law was explained to Mr. Squire, and he was informed that he could not examine patients, fit trusses, nor treat rupture in the State of Minnesota unless licensed. He stated that the charge for this device was from \$8.00 to \$15.00 and that Moorhead was his first stop in Minnesota. He also planned to stop at Fergus Falls, but stated that he would prefer to leave the State of Minnesota at once. No prosecution was instituted. Mr. Squire had seen no patients and under the circumstances he was given an opportunity to leave and did so at once.

OBITUARY

Ragnvald Leland
1865-1936

RAGNVALD Leland was born at Borge Lofoten, Norway, on August 19, 1865. His parents were Johan J. Liland and Johanne Volla. His education for higher scholastic degrees was completed at Oslo in 1888, and in the same year he left for the United States, eventually settling in Minneapolis. Here he took up the study of medicine at the University of Minnesota.

Graduating with the degree of Doctor of Medicine in 1895, he practiced at Menomonie and Grantsburg, Wis., for about a year, and then moved to Kenyon, Minnesota, where he practiced until the day of his death, April 28, 1936.

On June 23, 1897, he was married to Mabel Johnson at West Salem, Wisconsin. To this union were born five children: Dr. Harold R. Leland of Minneapolis; Valborg Von Kuegelgen of Winnipeg, Canada; Hildur of Wesleyan University, Bloomington, Illinois; and Marna and Margaret of Minneapolis; all of whom, together with his wife, survive him. He is also survived by a brother, Gotfred, who lives at Birch Hills, Canada, and by two younger sisters, Selma, the wife of Hans Rystad, and Dina, now Mrs. Laurits Eggum, both of Bergen, Norway.

Dr. Leland was a man of general culture, widely read and versed in many subjects. He had two interesting hobbies in music and languages, besides keeping well abreast with the exacting demands of his profession. He was a man of unusual intellectual attainments, and as a student of language was unusually proficient.

In spite of his attainments and success in his profession, Dr. Leland was very modest, shunning all ostentatiousness and personal display, and choosing rather to be faithful in the performance of his duty to his patients, his family and his fellow men than to be known for any other accomplishments. He was a good father and a loving husband, and enjoyed the quiet and companionship of his friends and family circle more than anything else. He was always in excellent health until about four or five years ago, when he suffered a slight stroke. He recovered from this, and again busied himself with his medical practice. In the many emergencies he faced, he showed himself always equal to the task, and was an honor and credit to his profession. As a country doctor he ministered to thousands throughout his long life of service. He wanted to die at work, and his wish was granted him.

F. H. Archibald
1865-1936

DR. F. H. Archibald of Mahanomen, Minnesota, was born December 6, 1865, at Lindenwood, Ogle County, Illinois. He attended local schools and took college preparatory work at Dixon, Illinois. His medical degree was obtained from the College of Physicians and Surgeons, Chicago, in 1893.

Following graduation from medical school, Dr. Archibald practiced three years at Gibbon, Minnesota, and then at Atwater until 1906. For about a year he had offices at Breckenridge and Thief River Falls before moving to Mahanomen in 1907, where he had since practiced.

Dr. Archibald was always active in community affairs, having served at one time as health officer and on the school board and village council. He was a member of the Clay-Becker County Medical Society, the Northern Minnesota Medical Association, Minnesota State and American Medical Associations and the Mahanomen Masonic Lodge.

While at Atwater, Dr. Archibald married Josephine Baily, who preceded him in death in 1927. One son, Frank V. Archibald of Fargo, and a daughter, Adelaide of Mahanomen, were with their father when the end came, March 1, 1936.

Dr. Archibald was one of the first physicians in the region of Mahanomen, and during the war was the only doctor in the county. He was known to have been ever ready to respond when his services were desired.

Clifford Eugene Alexander
1901-1936

THE death, on February 9, 1936, of Dr. C. E. Alexander, our fellow practitioner, due to complications developing after a head injury, was very unfortunate. Most of us like to remember him because of his sincerity and subtle humor. He was essentially devoted to his large practice and, probably more than any others, his patients will miss him.

Born and educated in Minneapolis, he was graduated from the University of Minnesota in 1924. He then served his internship at St. Mary's Hospital, Duluth. In 1930, he completed a year's post-graduate study in Vienna, specializing in obstetrics and gynecology. He was associated with the Arrowhead Clinic.

Dr. Alexander was a member of the St. Louis County Medical Society, Minnesota State Medical Association, American Medical Association, and the staffs of St. Mary's and St. Luke's Hospitals.

His untimely death is deeply regretted. His wife and two children, Clifford, four years, and Nancy Jean, four months, survive him and to these we extend our sincere sympathy.

OF GENERAL INTEREST

OF GENERAL INTEREST

Dr. Josephine Tofte has moved from Dawson, Minnesota, to St. Cloud, Minnesota.

* * *

Dr. F. M. Feldman, formerly of Minneapolis, is now located in Mankato, Minnesota.

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Dr. O. F. Mellby of Thief River Falls was sent by his local club as a delegate to the District Rotary Club convention in Duluth in May.

* * *

Dr. Herman Hilleboe of St. Paul has been appointed to direct the crippled children's service under the State Board of Control as provided for by the Social Security Act.

* * *

Dr. Henry E. Michelson of Minneapolis has been selected to make the American contribution to the Festschrift of Professor Finger of Vienna, the noted Austrian syphilologist.

* * *

Word has been received of the marriage of Miss Bernice Chutkow of Los Angeles, California, to Dr. Julius L. Goldenberg, a graduate of the University of Minnesota medical school now located in Los Angeles.

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Dr. Berenice Moriarty, Saint Paul, formerly associated with Dr. L. W. Barry, has opened an office at 812 Lowry Medical Arts Building, Saint Paul, for the practice of gynecology and obstetrics.

* * *

Word has been received of the death in California of Dr. Giles R. Pease, who for many years was a physician in Redwood Falls, Minnesota, before retirement from active practice several years ago.

* * *

Dr. Douglas M. Garrow of Rochester joined the Oliver Clinic at Graceville, Minnesota, June 15, where he will continue his practice in general medicine and obstetrics.

* * *

Max C. Kern of St. Cloud, son of Dr. and Mrs. M. J. Kern, received his degree in medicine at Creighton University, Omaha, Nebraska, early in June. He will serve his internship at St. Joseph's Hospital, St. Paul.

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Dr. C. W. Rumpf of Faribault, Captain in the Medical Reserve, was elected president of the State Department of Reserve Officers at the convention of State Reserve Officers held in Faribault the latter part of May.

* * *

Dr. A. Erickson has opened an office in Sanborn, Minnesota, for the practice of medicine and surgery. He is a graduate of the University of Minnesota, class of 1934, and for two years has practiced medicine in the Des Moines, Iowa, County Hospital.

Dr. H. B. Ewens of Virginia was honored at the spring ceremonial of Aad Temple of the Shrine held in Duluth the latter part of May. Dr. Ewens is a representative to the Imperial Council and was especially honored as potentate of Aad Temple.

* * *

Dr. James J. Swendson of St. Paul talked to members of the Rice County Medical Society at the Faribault Clinic Rooms, Faribault, Tuesday, June 23, 7:45 p. m. on "Birth Control."

Dr. F. J. Lexa, delegate, reported to the society on the state meeting at Rochester.

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Dr. J. P. Medelman recently became associated with Dr. Edward Schons in the specialty of x-ray diagnosis and treatment with offices at 572 Lowry Medical Arts Building, Saint Paul. Dr. Medelman spent five years with Dr. Allison and a year in x-ray work with a clinic in Texas before coming to Saint Paul.

* * *

Announcement has been received of the marriage on Monday, June 1, 1936, of Miss Anastasia Haley Hodgson of Fergus Falls and Dr. John Lohmann, who is a member of the medical staff at the state hospital in Fergus Falls. Mrs. Lohmann is a niece of Dr. and Mrs. A. C. Baker of Fergus Falls.

* * *

The marriage of Dr. E. M. Anderson of Lamberton, Minnesota, and Miss Mabel Gilland of Sleepy Eye, Minnesota, took place Thursday, June 4, in Minneapolis. Dr. and Mrs. Anderson are now at home in Lamberton, where Dr. Anderson has been engaged in the practice of medicine for the past year.

* * *

Dr. and Mrs. B. O. Mork, Sr., of Worthington, Minnesota, with their son and daughter-in-law, Mr. and Mrs. Raymond Mork, sailed for Europe from Montreal, Quebec, the latter part of June for a two months' vacation in Europe. They will visit first in France, going from there to Norway, where they will visit relatives and attend the World Sunday School convention in Oslo. En route home they will visit in England.

* * *

The Annual Graduate Fortnight of the New York Academy of Medicine will be held October 19-31, 1936, and will be devoted to the subject: Trauma; Occupational Diseases and Hazards. Twenty-three important hospitals in New York City will present coordinated afternoon clinics and clinical demonstrations. At the evening meetings various aspects of the subject will be discussed by prominent clinicians from various parts of the country. Those interested in registering for the course should communicate with Dr. Frederick P. Reynolds, The New York Academy of Medicine, 2 East 103rd Street, New York City.

* * *

At the close of the present academic year, Dr. E. P. Lyon, Dean of the Medical School, retired from active service at the University of Minnesota. During his administration, covering a period of twenty-three years,

the Medical School has exhibited steady and continued growth. As a fitting tribute to his stimulating leadership, the alumni and faculty of the Medical School propose to establish in his honor the Elias Potter Lyon Medical Lectureship at the University of Minnesota. The fund for this purpose is to be raised through subscriptions by alumni, faculty, students, and friends. Contributions to the Lyon Lectureship fund may be sent to Mr. William T. Middlebrook, Comptroller, University of Minnesota, Minneapolis.

* * *

June weddings of interest to members of the medical profession included the following: Dr. Raymond F. Hedin of Red Wing and Miss Lydia Elizabeth Anderson, also of Red Wing, June 19; Dr. Alvin Erickson of Hendricks and Miss Marion Piltingsrud of Leeds, N. D., June 12; Dr. John J. Boehrer of Minneapolis and Miss Jeanne Kathryn Halloran of Minneapolis, June 15; Herbert G. Bartholdi of Duluth and Miss Ruth Graham, daughter of Dr. and Mrs. Robert Graham, Duluth, June 20; Dr. V. A. Weed of Red Lake Falls and Miss Marjorie Kundert of Red Lake Falls, June 21.

* * *

The Extension Committee of the Medical School in coöperation with the Committee on Hospitals and Medical Education of the State Medical Association would appreciate an expression of opinion from the physicians of the state concerning courses for practitioners at the University.

1. What is the best time of year to hold these courses?
2. What subjects are most desired?
3. How long should the courses be?
4. Would you be interested in a resident course of two to four weeks' duration?

In order to serve better the physicians of the state it is urged that you answer by return mail, or as soon as possible, to R. R. Price, Director General, Extension Division, University of Minnesota.

* * *

At the 92nd Commencement exercises of Notre Dame University, honorary degrees were conferred on Dr. William J. Mayo and Dr. Charles H. Mayo, Mr. Francis P. Garvan, president of the Chemical Foundation of New York, and Archbishop Edward Mooney of Rochester, New York.

The graduating class of 428 students from thirty-nine states and four foreign countries was addressed by Dr. William J. Mayo. In his fifteen minute talk, entitled "Education Guides the Young to Good Citizenship," which was broadcast over the N.B.C. hookup, Dr. Mayo denied that the professions are overcrowded and stressed the need for research, particularly in the biological fields. The day preceding Commencement the cornerstone of a new Hall of Biological Research was laid at Notre Dame, in the planning of which the Drs. Mayo had contributed valuable advice.

Dr. Mayo's address appears on page 468 of this issue.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

Medical Broadcast for July

The Minnesota State Medical Association Morning Health Service:

The Minnesota State Medical Association broadcasts weekly at 9:45 o'clock every Tuesday morning over Station WCCO, Minneapolis and Saint Paul (810 kilocycles or 370.2 meters).

Speaker: William A. O'Brien, M.D., Associate Professor of Pathology and Preventive Medicine, Medical School, University of Minnesota.

The program for the month will be as follows:

July 7—Hardening of the Arteries of the Legs.

July 14—Contagious Diseases in Children.

July 21—Heart Disease.

July 28—Vacation Problem.

Medical Library Association

The Medical Library Association, which is international in its membership, including medical libraries in Canada and the United States and one each in England, China and Syria, met for a three day session June 22 to 24 inclusive at the Ramsey County Medical Society Library in Saint Paul.

The seventy-nine librarians who registered, mostly from twenty-two different states of the Union, heard addresses, during Monday at the Ramsey County library and after dinner at the Lowry Hotel, heard their president Dr. W. W. Francis, librarian of the Osler Library at McGill, speak on the past history of the Association. Dr. Francis is a nephew of the late Sir William Osler.

After the morning session Tuesday, those attending the meeting had luncheon at the Minnesota Union on the University Campus and in the afternoon visited the University of Minnesota library where a question box discussion of library problems proved most interesting. Upon demand of a number of registrants a visit was made to the University of Minnesota Dental College whose fame had spread afar. Tea was served the visitors at the Hennepin County Medical Society library in Minneapolis, which was followed by a bus tour of the lake residential district of Minneapolis.

On Wednesday the Association departed by bus for Rochester where it was welcomed by the Mayo Brothers and addressed by clinic members active in the clinic library at Rochester. Visits were made to the Institute of Experimental Medicine, the Museum of Hygiene and Medicine which houses the Transparent Man at one time exhibited at the Chicago World's Fair, and the Clinic Building.

On Sunday afternoon preceding the session visitors accepted the hospitality of Dr. and Mrs. William H. Von der Weyer at their summer place on Grey Cloud Island.

At the business meeting of the Association a resolution was passed requesting Congress to provide for the continuation of the Army Medical Library by providing

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

a suitable building to replace the present outgrown accommodations. It was also decided to take up with the American Medical Association a change in the reporting of the volume content of medical libraries, for the sake of uniformity.

Officers elected for the ensuing year were: Dr. W. W. Francis (Montreal), president; Mr. James F. Ballard (Boston Medical Library), vice president; Miss Janet Doe (New York), secretary; Miss Mary Louise Marshall (New Orleans), treasurer.

1937 State Meeting

The St. Paul Auditorium has been secured without charge for the 84th Annual Meeting of the Minnesota State Medical Association to be held in St. Paul in 1937.

Dates tentatively selected and subject to the approval of the Council of the Association are May 2, 3, 4 and 5. The new theater, the arena and Stem Hall will all be available to house the scientific sessions and exhibits which, with ample room in prospect, already bid fair to be the most extensive ever staged for these meetings.

Already 28 spaces have been reserved in advance by technical exhibitors who wish to be represented at the meeting. This extraordinary early reservation of space is indicative of the interest and importance of the Minnesota meeting.

Following are the names of these exhibitors:

Abbott Laboratories, North Chicago, Ill.
C. F. Anderson Co., Minneapolis, Minn.
Ayerst, McKenna & Harrison, Montreal, Canada.
Bard-Parker Company, Danbury, Conn.
Bilhuber Knoll Corp., Jersey City, N. J.
Brown & Day, Inc., St. Paul, Minn.
Davies Rose & Company, Boston, Mass.
General Electric X-Ray Corp., Minneapolis, Minn.
General Heat & Air Engineers, Minneapolis, Minn.
Gerber Products Co., Fremont, Mich.
I. Kessell Company, St. Paul, Minn.
Lea & Febiger, Publishers, Philadelphia, Pa.
Lederle Laboratories, New York, N. Y.
Mead Johnson Company, Evansville, Indiana.
Wm. S. Merrell Company, Cincinnati, Ohio
C. V. Mosby Book Co., St. Louis, Mo.
Petrologar Laboratories, Inc., Chicago, Ill.
Philip Morris Co., New York, N. Y.
Physicians & Hospitals Supply Co., Minneapolis, Minn.
W. B. Saunders Co., Philadelphia, Pa.
Schering Corp., Bloomfield, N. J.
Sonotone-Minnesota Co., Minneapolis, Minn.
E. R. Squibb & Sons, New York, N. Y.
The Tower Company, Seattle, Washington.
U. S. Hospital Supply, Minneapolis, Minn.

East Central Minnesota

The East Central Minnesota Medical Society held a dinner meeting at Pokegama May 26 with the Auxiliary. Following the dinner the physicians heard Dr.

Merritt Wheeler, St. Paul, on "Sinusitis and Its Treatment"; Dr. Edward Evans, Minneapolis, on "Fractures of the Hip," and Dr. Royal C. Gray, Minneapolis, on "The Psychopathic Hospital." The women held their regular Auxiliary meeting.

Redwood-Brown County Society

Dr. C. A. Saffert of New Ulm was elected president of the Redwood-Brown County Medical Society at the annual meeting held at New Ulm, in May. Dr. Francis Gibbons of Comfrey was named vice-president, Dr. Carl J. Fritsche, New Ulm, was re-elected secretary-treasurer, while Dr. O. J. Seifert, also of New Ulm, was retained as censor for another three year period. The members decided to inaugurate a medical economics committee. Members of the group are Dr. Albert Fritsche, chairman; Drs. T. F. Hammermeister and O. J. Seifert of New Ulm; Dr. A. P. Goblirsch, Sleepy Eye; and Dr. Arthur Wohlrabe, Springfield.

Southern Minnesota Medical Association

The annual meeting of the Southern Minnesota Medical Association will be held at Albert Lea on Sunday and Monday, August 30 and 31.

The Sunday night meeting will be addressed by some well known speaker who will talk on a popular subject, speaker and subject to be announced. Clinics will occupy the morning session, and formal papers the afternoon.

Dr. H. C. Habein, Rochester, is secretary of the organization.

The Nomenclature of the Corpus Luteum Hormone

The present unsettled statement of endocrinologic nomenclature has been the cause of increasing confusion in recent years. In an effort to remedy this deplorable situation, the Council on Pharmacy and Chemistry solicited the cooperation of a number of experts who have made fundamental contributions to glandular physiology. This group has been termed the Advisory Committee on the Nomenclature of Endocrine Principles. This Committee has considered the question of choosing an appropriate name for the one definitely established hormone of the corpus luteum. This hormone is defined and quantitatively estimated by its property of acting on the rabbit's uterus to produce histologic changes (progestational changes) resembling those observed during early pregnancy and pseudopregnancy. It has been demonstrated and agreed that this substance is represented by the formula $C_{27}H_{48}O_2$ (Δ^4 -17-acetyl-androstenone-3) and that no other natural substance has as yet been found having the same physiologic properties. On the recommendation of the Advisory Committee, the Council adopted the following terms: (1) *progesterone* to indicate the chemically pure substance having the formula and properties mentioned above; (2) *progestin* as a general term to indicate the substance (and other chemically allied substances having similar action, in case any such compounds are subsequently discovered) without reference to the state of chemical purity, for convenience in clinical and biologic speech and writing.—(J. A. M. A., May 23, 1936, p. 1808.)

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of May 13, 1936

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club, on Wednesday evening, May 13, 1936.

The meeting was called to order at 8:15 by the president, Dr. Thomas S. Roberts. There were forty-eight members present.

Minutes of the April meeting were read and approved.

The scientific program followed.

EPIZOOTIOLOGY OF TULAREMIA IN MINNESOTA

ROBERT G. GREEN, M.D.
Minneapolis

Dr. Green, of the Department of Bacteriology and Immunology of the University of Minnesota, read his Inaugural Thesis on the above subject. Lantern slides were shown.

Abstract

Prevention of human infections of tularemia depends upon an understanding of the occurrence of this disease in animals and the control of human contacts with the animal infection.

Among animals, tularemia is transmitted almost entirely by intermediate hosts, and the disease varies from a mild, symptomless infection in some species to a violently fatal disease in others. In the cottontail rabbit, tularemia is an acute, highly fatal disease and occurs as local epizootics devastating to this species. In snowshoe rabbits, tularemia is a relatively mild infection and does not produce an appreciable mortality. Epizootics of this mild infection develop in snowshoe rabbit populations each spring with the advent of ticks from hibernation. Upon epizootic spread of tularemia among cottontail rabbits, the infection in ticks increases. With the spread of tularemia among snowshoe rabbits, no appreciable increase in tick infection occurs. Grouse appear to be more susceptible to tularemia than the snowshoe rabbit, and indications are that natural infections in this bird are not uncommon.

Wood ticks in Minnesota occur during late spring and early summer and vary greatly from year to year in percentage infection with tularemia. The highest rate of infection found in Minnesota has been 0.25 per cent. The infection in wood ticks is obtained principally from small rodents and not from rabbits.

While tularemia is generally quiescent in the winter months, it may be found in snowshoe rabbits in mid-winter as a chronic pulmonary process. Tularemia may occur occasionally in cottontails from transmission by fleas, which remain active all winter.

The greatest hazard of human infection with tularemia in Minnesota is from wood ticks during the months of May and June, and from direct animal con-

tact during the months of September and October. The incidence of tularemia in both wild animals and ticks is at very low ebb during the months of July and August. In the absence of ticks from November until March, tularemia is of rare occurrence among wild animals.

Discussion

DR. J. M. ARMSTRONG, St. Paul: How does tularemia affect the snowshoe rabbit? Is this animal infectious after November?

DR. GREEN: The snowshoe rabbit ordinarily does not show symptoms of tularemia and the abscesses typical of this disease in many animals are not usually found if the snowshoe dies. After a quiescent state during the summer, tularemia appears in the snowshoe rabbits during September and October. There is a period in the latter half of October and the first part of November when infections among hares still occur but are not common. An occasional hare will develop tularemia even in December. There is a chronic pulmonary tularemia that we have found persisting throughout the winter months. This infection is much like pulmonary tuberculosis. It would seem that the big hazard of tularemia in snowshoe rabbits is past in Minnesota, early in November.

DR. C. M. CARLAW, Minneapolis: I would like to ask about the portal of entry. Is this disease contracted through the gastro-intestinal tract or through the skin?

DR. GREEN: The infection is commonly contracted through the skin from the blood of an infected animal or from the bite of a wood tick or deer fly. Infection through the gastro-intestinal tract has occurred from the eating of infected rabbits not thoroughly cooked; but this is, of course, unusual.

DR. JOHN BUTLER, Minneapolis: Will you differentiate between the ulcero-glandular and oculo-glandular types? Are they the same?

DR. GREEN: The only significant difference between these two types of tularemia is the local lesion. In the one case the local lesion is an ulcer in the skin and in the other the primary lesion is a characteristic conjunctivitis.

DR. BUTLER: What is the significance of the glandular type?

DR. GREEN: Passage of the organism through the intact skin will produce the glandular type of disease in animals and experimentally one similar infection has been produced in man. The ulcer formation appears to be a combination of an injury and infection by the organism.

DR. BUTLER: What do you consider the significance of the typhoidal type?

DR. GREEN: That is rather an enigma at the present time. The typhoidal type has occurred principally in laboratory workers. Some investigators believe that this type of disease develops after the passage of the organism through the intact skin. It is my opinion that most laboratory cases have followed infection through the upper respiratory or gastrointestinal tract. We have found definite evidence of a difference in the

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virulence character of *Pasteurella tularensis* when the organism is first isolated from different animals. I have a feeling that the characteristic laboratory infection is produced by a strain of the organism modified by passage through guinea pigs. Only a few cases of the typhoidal type have been reported from general practice and it may be that these infections are due, in part, to a peculiar natural animal source either directly or indirectly.

DR. W. R. RAMSEY, St. Paul: Have you found anything that can be used as a protection against the ticks?

DR. GREEN: When one has been exposed to ticks, clothing should be removed and a careful examination for ticks made within three or four hours. The infection does not appear to come from the bite of the tick directly but rather from contamination of the wound with tick feces, which contain the organism. If a tick has become attached, I advise that a disinfectant be applied to the tick before removal and also to the surrounding skin area. The fingers should be wet with disinfectant when the tick is pulled off. The wound produced, as well as the surrounding skin, should be treated with an effective germicide.

DR. BUTLER: Surgical interference has been suggested for treating the ulceroglandular type of tularemia. I would like to know whether surgical interference is indicated in the glandular type of disease before suppuration of the lesion?

DR. GREEN: It is my opinion that no lymph node in any type of tularemia infection should be incised until the lymph node has actually softened. Many lymph nodes enlarged almost to the point of suppuration will begin regression and cause a minimum of difficulty. Once incision has been performed, however, a chronic ulcerative lesion will usually develop.

DR. H. W. GRANT, St. Paul: Are the ticks found on moose in the spring infected with tularemia?

DR. GREEN: No. The moose tick has never been found infected with tularemia. This tick is a different species from the wood ticks that bite man, and many attempts to demonstrate tularemia in these ticks have all yielded negative results.

DR. RAMSEY: What would you consider a good disinfectant to use in a case of a tick bite?

DR. GREEN: Apparently any standard disinfectant is sufficient to kill *Pasteurella tularensis* very easily. Dr. R. R. Spencer, of the United States Public Health Service, has shown that castor oil soap, developed by Dr. Larson, is a specific for this organism. *Pasteurella tularensis* dissolves very quickly in castor oil soap.

DR. RAMSEY: Is there any kind of oil one can put on to keep the ticks off?

DR. GREEN: I do not know of any tick repellent that is of any value.

DR. C. B. DRAKE, St. Paul: Is there a possibility of developing a serum against tularemia?

DR. GREEN: Such a serum has been developed by Dr. Lee Foshay of the University of Cincinnati and this serum is apparently now coming into rather general use. The serum is made by the hyperimmunization of goats. There would appear to be no doubt that this serum is of great value in the treatment of tularemia. Like other serums, it must be used early in the course of the disease to exert its maximum influence.

DR. BUTLER: The initial lesion of sporotrichosis is not unlike the initial lesion of tularemia. Can you

differentiate between that disease and tularemia by any means other than the agglutination test?

DR. GREEN: A differential diagnosis may also be made, and much earlier, by direct isolation of the organism from the original sore. If scrapings of the lesion are taken early and injected into guinea pigs, a diagnosis of tularemia may be established in from four to six days.

DR. DRAKE: How early can diagnosis be made?

DR. GREEN: Diagnosis can be made by animal inoculation in about a week's time. The skin test being developed by Dr. Foshay will give the earliest diagnosis. In one of our laboratory cases the first symptom, a high fever, was shown at ten o'clock in the evening. The skin test done at ten o'clock in the morning was slightly positive the following day. The patient gave a negative skin test a short time previous to infection. In this individual a skin test five days after the onset gave a very positive reaction. A difficulty with the skin test is that it gives some false negatives and a few very exaggerated positives which may even produce severe general reaction. It seems to me that routine early diagnosis of tularemia could be made by the use of three graded skin tests. The first skin test would be very dilute material for those highly sensitive. A second skin test would be applied the following day to those not reacting to the first, thus eliminating unduly severe reactions. A third skin test of more concentrated material could be used on the third day for those not giving reactions on the first and second days. If this could be worked out, the maximum benefits from the early use of serum could be obtained.

DR. MOSES BARRON, Minneapolis: As I understand it, the name comes from Tulare County in California.

DR. GREEN: That is true.

DR. DRAKE: Is there any tularemia in Europe?

DR. GREEN: It is known in the Scandinavian countries, Germany, Russia and Japan, but is not yet known in southern European countries.

DR. DRAKE: Is it an old disease?

DR. GREEN: Yes. There is every reason to believe that the disease has always been present in North America.

DR. S. E. SWEITZER, Minneapolis: What is the material as used is so dilute that it looks like clear water.

DR. GREEN: It is a preparation of the killed organisms which has been treated with nitrous acid which cuts down the toxicity to a great degree. The material as used is so dilute that it looks like clear water.

DR. KENNETH BULKLEY, Minneapolis: Has hyperpyrexia been tried in these cases, if the temperature apparently affects the organism?

DR. GREEN: My idea that temperature is a limiting factor in the distribution of this disease is, of course, little more than an idea. It might well be that such is the case and that this infection would respond to treatment by hyperpyrexia. However, the more severe cases of this disease have a high sustained temperature.

DR. JOHN BROWN, St. Paul: Have you studied tularemia in reference to cold-blooded animals? I have found ticks on the legs of turtles at times.

DR. GREEN: Tularemia in cold-blooded animals has not been investigated to my knowledge.

The meeting adjourned.

R. T. LAVAKE, M.D., Secretary.

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

CERTIFIED MILK. Proceedings of the A.A.M.M.C. A.M.P.A.A., and M.C.M.P., 1932, 1933, 1934 and 1935. 363 pages. Cloth. Certified Milk Producers' Association of America, Inc., 1936.

EXOPHTHALMIC GOITER AND ITS MEDICAL TREATMENT. Israel Bram, M.D., Medical Director Bram Institute for the Treatment of Goiter and Other Diseases of the Ductless Glands, etc. 456 pages. Illus. Price, cloth, \$6.00. St. Louis: C. V. Mosby Co., 1936.

SYNOPSIS OF DISEASES OF THE HEART AND ARTERIES. George R. Herrman, M.D., Ph.D., Professor of Clinical Medicine, University of Texas. 344 pages. Illus. Price, cloth, \$4.00. St. Louis: C. V. Mosby Co., 1936.

DISABILITY EVALUATION. Principles of Treatment of Compensable Injuries. By Earl D. McBride, B.S., M.D., F.A.C.S. Assistant Professor in Orthopedic Surgery, University of Oklahoma, etc. 623 pages. Illus. Price, \$8.00 cloth. Philadelphia: J. B. Lippincott Co., 1936.

THE SINGLE, THE ENGAGED, AND THE MARRIED. Maurice Chideckel, M.D. 268 pages. Price \$2.50. New York: Eugenics Pub. Co., 1936.

In this book the author has handled a delicate subject with commendable finesse. The fact that he not only cites many cases from his own practice, but that he also exhibits a knowledge of the literature on the subject, shows that he has the necessary background to discuss these matters. As the title suggests, he has divided the sex life into three periods, and he frankly discusses the problems peculiar to each, giving definite advice as to how to meet those problems. This sensible and well-written treatise on an important subject can be read with profit by both laymen and physicians.

L. W. BARRY, M.D.

PARENTERAL THERAPY: a ready reference manual of extra-oral medication for physicians, dentists, pharmacists, chemists, biologists, nurses, medical students and veterinarians. By W. F. Dutton and G. B. Lake. Springfield, Ill.: C. C. Thomas, 1936.

To those physicians who by experience know the accuracy and effectiveness of parenteral medication, the new book on this subject by Dutton and Lake will strengthen them in their efforts to make the practice of medicine more scientific. To those practitioners who have not yet used this very simple and direct method of treatment, parenteral therapy should prove to be the "opportunity to arrive" which they have long been hoping would knock at their door. This type of therapy has long been overlooked and neglected because the technic had not been accurately described. Now the authors of this book cover completely and in detail this type of administration of therapeutic substances.

It is a stimulating discussion of all phases of the use of the "hypo" needle from the simple subcutaneous injection to the more complicated cisternal puncture. To my mind the three chapters on intravenous medication are most important because of the great variety of physical impairments which can be treated successfully by this method.

The book is direct in its approach, precise in its description of technic, much of which is beautifully illustrated, and exact in its instruction, not forgetting the necessity of being cautious and in looking for danger signals. Dutton and Lake show more clearly than any other current author the fundamental principles of parenteral medication.

NORMAN M. SMITH, M.D.

Larostidin "Roche" Not Acceptable for N.N.R.

The Council on Pharmacy and Chemistry reports that in the latter part of 1934 and in 1935 the medical profession was deluged with propaganda for "Unquestionably the most notable advance in the medical treatment of Gastric and Duodenal Ulcer," Larostidin "Roche." According to the advertising, this is a 4 per cent solution of *laevo*-histidine-monohydrochloride in an isotonic medium. The Council questioned some of the claims made by Hoffmann-La Roche, Inc., and initiated a series of experiments to determine the usefulness of histidine hydrochloride and Larostidin "Roche" in treating gastric and duodenal ulcer as compared with the diet-alkali regimen. The results of this investigation are reported in *The Journal A. M. A.*, April 25, 1935, p. 1468 (Martin, K. A.: "Histidine versus Diet and Alkalies in Treatment of Peptic Ulcer"). The investigator reported that the symptomatic and radiologic response of forty-one patients in the injection series was not quite so good as that of the forty control patients in the diet-alkali series, in either the initial or the sustained effects. As a result of its consideration of the paper of Martin and others, however, the Council concluded that, although there is at present insufficient clinical evidence for its evaluation, histidine hydrochloride shows promise of possible usefulness in the treatment of gastric and duodenal ulcer. The Council declared Larostidin (Hoffmann-La Roche, Inc.) not acceptable for New and Non-official Remedies because it is marketed with unwarranted therapeutic claims, and voted to postpone further consideration of histidine monohydrochloride until adequate clinical evidence of its therapeutic usefulness is available. (*J. A. M. A.*, April 25, 1936, p. 1473.)

Chemistry of Vitamin E

In a recent communication, Evans and his collaborators at the University of California (*J. Biol. Chem.* 113:319, February, 1936) report the successful isolation from wheat germ oil of an alcohol having the properties of vitamin E. The material was obtained as an oil, and it exhibited sporadic vitamin E activity in doses of 1 mg. The investigators propose for this alcohol the name "*a*-tocopherol," from the roots "*tokos*" meaning childbirth, "*phero*" to bear and the ending "*ol*," indicating an alcohol. Two crystalline derivatives of this physiologically active oil were prepared, and the elemental analyses of these compounds indicate an empirical formula of $C_{28}H_{48}O_2$ for the vitamin itself. The isolation of the vitamin itself in crystalline form and establishment of its chemical configuration should give some interesting insight to its rôle in the organism and to the mechanism of its activity. (*J. A. M. A.*, April 25, 1936, p. 1496.)